

ON THE INTERPRETATION OF ASPECT AND TENSE  
IN CHIYAO, CHICHEWA AND ENGLISH

John Alfred Clement Mapanje

Thesis submitted in partial fulfillment  
of the requirements for the degree  
of Ph.D in Linguistics

University College London

1983

ABSTRACT

This study deals with the cross-linguistic interpretation of aspect and tense in natural languages which have superficially disparate morphological structure. It is argued that in Yao, Cheŵa (Bantu languages) and English, where aspect for instance, is not as systematically grammaticalized as it is in Slavic, the interpretation of aspect and tense must be one which construes them as theoretical (conceptual) categories. We assume essentially that both aspect and tense are characterized by temporal primitives which are often though not invariably, denoted by morphological markers.

"Verbal aspect" in Slavic for example, is effectively defined by the temporal stretch encoded in (or signalled by) a productive system of affixal marking. The temporal stretch is characteristically completive, inceptive, resumptive, durative, continuative, punctual, iterative etc. These aspectual time schemata have affinities with those assumed by philosophers and linguists like Vendler (1957), Kenny (1963), Dowty (1977, 1979) and others for the classification of verbs and verb phrases. These in turn are similar to the time schemata encoded by such categories as adverbials and noun phrases. Accordingly, though Yao, Cheŵa and English

might not mark aspect morphologically in the manner common in Slavic, the specification of aspect is assured by the semantic content of VPs, ADVs etc., thus facilitating a cross-linguistic treatment of the category.

Correspondingly, "tense", which is a deictic category and is largely morphologized in Yao and Chewa is also best understood when we examine the temporal structure of whole utterances. We take tense to be a category orthogonal to aspectual concepts like continuity, habituality, inception, completion etc. and which specifies how these are related to each other, in terms of whether or not they are anterior or posterior to or simultaneous with the speech time of utterances in question (Cf. Reichenbach, 1947; and followers).

Traditional and model-theoretic treatments of these concepts have inadequacies which manifest themselves in the form of such problems as the "imperfective paradox" (Cf. Dowty, *ibid*), the "gaps problem" (Cf. Bennett, 1981), the problem of the lack of difference in truth conditions between the "simple past" and "perfect" utterances when it is clear that some (intuitively semantic) difference between them exists etc. It is suggested that these issues be resolved within pragmatics of the Gricean (1968, 1975 etc) type as recently extended by Sperber & Wilson (1982, forthcoming).

On the interpretation of aspect and tense in Yao, Chewa and English then, this study takes the view that two

factors are operative: semantic factors exemplified by the knowledge (or identification) of the time schemata encoded in morphological markers, words and constructions and the truth-conditional processing of the propositions thus expressed on the one hand, and pragmatic factors of their use (e.g. the "principle of relevance" of Sperber & Wilson, *ibid.*) which determine the choice of the appropriate construal of those utterances which are especially temporally indeterminate on the other.

#### ACKNOWLEDGEMENTS

I should like to express my gratitude to members of staff at the Department of Linguistics, University College London who have taught me linguistics almost from scratch throughout the three years that I have been an internal student there, and to my fellow research students with whom I fleshed out some of the issues here.

I am particularly deeply indebted to Professor Neil Smith who not only supervised this work with the patience and rigour that others do not have, but who opened up a brand new world for me. If those precious hours he spent with me sorting out the linguistic issues from the "poetic ones" are not rewarded by aspects of this thesis, the fault is with the stars, and not the supervision!

The Association of Commonwealth Universities who gave me a three-year Commonwealth Scholarship in order to do the research that has led to this thesis, deserve mention. So do the Africa Trust Fund, Mr W.K.Weinberg of Nansen Village, the Malawi Government, and particularly Roy and Barbara Prangell all of whom helped my family and me in the crucial moments of our stay in the U.K. I will not name one other anonymous "friend" who calmed our nerves financially once.

Sally Gilbert is also to be thanked for giving me a deadline in which she could type this thesis.

DEDICATION

"Daddy, why do you always shout at us every time  
you come back from the library?" Judith-Dalitso,  
Wimbledon, London, S.W.19.

To my wife Mercy-Angela and our children  
Judith-Dalitso, Lunda-Pilila, and Likambale-  
David, who have suffered the anxieties of what  
went into this thesis.

TABLE OF CONTENTS

CHAPTER ONE:	<u>Introduction</u> .....	11
	Footnotes to Chapter one .....	17
CHAPTER TWO:	<u>On marking, interpreting and</u> <u>understanding aspect (and tense)</u> <u>across language</u> .....	19
2.0	Introduction .....	20
2.1	A grammatical category across language .....	22
2.2	A note on aspectual markedness generally .....	32
2.3	Towards a working definition of aspect .....	45
2.4	Conclusions .....	48
	Footnotes to Chapter two .....	49
CHAPTER THREE:	<u>Verbal categories, markers and</u> <u>aspect in Yao, Chewa and English</u> ....	52
3.0	Introduction .....	52
3.1	The limitations of the Vendlerian verbal categories .....	54
3.2	The time schemata encoded in activities and states .....	56

3.3	The essential difference between states and activities .....	63
3.4	The time schemata encoded in accomplishment and achievement VPs ....	68
3.4.3	Accomplishments and achievements as essentially events .....	75
3.5	Verbal reduplication and iterative aspect in Yao and Chewa .....	77
3.6	The time schemata encoded in temporal adverbials .....	87
3.7	Aspectual marking in Yao and Chewa ...	89
3.8	The sentential interpretation of aspect in Yao and Chewa .....	98
3.9	Conclusion .....	103
	Footnotes to chapter three .....	106

CHAPTER FOUR:	<u>Tense markers, deictic adverbials and time interpretation in Yao, Chewa and English</u> .....	108
4.0	Introduction .....	108
4.1	The morphological and lexical marking of tense .....	110
4.1.1	The interpretation of present time markers .....	111
4.1.2	The interpretation of past time markers .....	119



4.1.3	The difference between the "simple past" and the "present perfect" ....	121
4.1.4	The interpretation of future time ...	126
4.1.5	Immediate past and future versus remote past and future .....	129
4.2	An outline of the Reichenbachian interpretation of tense .....	132
4.2.1	Towards a unified treatment of aspect and tense .....	136
4.3	Some limitations of the Reichenbachian model .....	142
	Footnotes to chapter four .....	146

CHAPTER FIVE:	<u>Some limitations of the truth-conditional treatment of aspect and tense</u> .....	150
5.0	Introduction .....	<b>150</b>
5.1	The search for a recursive definition of truth .....	151
5.1.1	The "gaps problem" in the interpretation of aspect .....	155
5.1.2	The semantic resolution of the gaps problem .....	161
5.2	The "imperfective paradox" and its semantic treatment .....	166
5.3	A few problem cases for the truth-conditional treatment of tense .....	171

5.3.1	The simple past versus the present perfect interpretation .....	171
5.3.2	The simple future and the progressive future interpretation .....	174
5.4	Conclusion .....	176
	Footnotes to Chapter five .....	178
CHAPTER SIX:	<u>Towards a pragmatic interpretation of indeterminate utterances for aspect and tense</u> .....	179
6.0	Introduction .....	179
6.1	Pragmatics in syntactic and semantic description .....	181
6.1.1	Choosing a relevant pragmatic framework ....	183
6.1.2	"Context" and the "principle of relevance" .....	187
6.2	Towards a pragmatic treatment of temporally vague utterances .....	190
6.2.1	The imperfective paradox .....	190
6.2.2	The gaps problem .....	193
6.2.3	The simple past and perfect interpretation .	195
6.2.4	The interpretation of future time .....	198
6.3	Conclusions .....	201
6.4	General Conclusion .....	202
	Footnotes to Chapter six .....	203
BIBLIOGRAPHY	.....	205

## CHAPTER ONE

### INTRODUCTION

This study concerns the interpretation of aspect and tense in Yao, Cheŵa <sup>1</sup> and English. The treatment of these categories across Yao, Cheŵa <sup>2</sup> (or the so-called "Bantu languages" generally) on the one hand and English on the other, is at first sight beset by several problems. The fact that the three languages have disparate morphological structure and that aspect, for instance, is a grammatical category which is characteristic of Slavonic languages and not Bantu, are two problems pertinent to the issue. We discuss these problems in the next chapter. But perhaps more immediate than these is the absence of established "typological" parameters expected to be adopted for any such cross-linguistic treatment.

Comrie (1976) is the natural place where we might expect such "typological parameters" for the contrastive treatment of aspect especially, to be indicated. But Comrie is too wise to want to attempt a move which might lead to an impasse. A recent study by Dezső (1982) devoted to contrastive syntactic typology for Russian, Hungarian

and other languages such as Swahili and Yao etc., typifies the confusion for any expected typological treatment of these categories. Discussing the basic sentence structure for determining "word order" in the languages indicated, for instance, Dezsö (p.22) makes a digression to discuss the uncertain role of the typology of aspect and tense thus:

The features of aspect and tense are much more problematic. The three basic tenses (past, present, future) are perhaps universal, or almost universal, whereas aspect or aspectuality is a type phenomenon with non-universal features. Unfortunately, the typological research into the categories of tense and aspect is still in its rudimentary stage.

In this study we hold the view that such typological research will remain rudimentary if we insist on the identification of aspect and tense with largely morphological parameters for their cross-linguistic treatment.

The claim of this thesis is that what might be referred to as the traditional "typological" treatment of aspect and tense would be appropriate where the languages in question have as it were, similar morphological structure (e.g.

Bantu languages<sup>3</sup> or Slavonic languages) and consensus is reached on the so-called typological parameters. Otherwise, as in our case here, the morphological parameters particularly for the treatment of aspect across Yao, Chewa and English are largely non-existent and at any rate in part, irrelevant.

Obviously where aspectual concepts are morphologized in the three languages, the important role of aspectual marking will not be dismissed. We believe however, that it is the semantic content of verb phrases, adverbials, the morphological markers themselves and other items (from which utterances are constructed) and especially the semantic content of whole utterances in both linguistic and extra-linguistic contexts, that facilitates the interpretation of these categories across languages. In other words, we acknowledge that the morpho-syntactic level plays an important role in the interpretation of aspect and tense. We assume however, that this is the first stage in the treatment of the two categories. Two other stages concern first, the interpretation of these categories insofar as their temporal structures are reflected in the semantics of whole utterances (and/or their treatment truth-conditionally); and the second stage concerns the interpretation of the categories contextually - constituting what might be called their pragmatics.

On the interpretation of tense which is largely morphologized in Yao and Chewa however, we shall follow

the advice of one wise linguist and claim that it is perverse to minimize the importance (in our case) of a good morpho-syntactic and semantic treatment of tense at our disposal in favour of a weak or an anecdotal theory of pragmatics or cognition. And if we adopt a pragmatic programme of the Gricean (1968, 1975 etc.) kind as extended by Sperber & Wilson (1982, and forthcoming), as we do below it is because the other two levels have been looked at and proven inadequate in ways which this study will make clear; and because we believe this partly cognitive based pragmatic theory not to be grounded in anecdote.

This thesis is organised along the following lines. Chapter two explores the parameters for the interpretation of mainly aspect and probably any other "covert" grammatical category which might be said not to "exist" overtly in some language or group of languages, and we conclude on the note that where aspect for example, is not morphologized, the concepts which are denoted by morphological markers in one language might be lexicalized or otherwise encoded in whole utterances in another.

Chapter three illustrates the claims of chapter two. It demonstrates how the concepts which characterize aspect are lexicalized and expressed in certain cases, sententially. We exploit the now well known Aristotle-Ryle-Vendler-Kenny

classification of verbs and verb phrases to demonstrate how aspectual concepts are "universally" encoded in natural languages.

Chapter four elaborates these claims for tense, essentially showing how this category is largely morphologized in Yao, Chewa and English. After sketching some of the limitations of this traditional approach, we adopt an extended version of the Reichenbachian (1947) treatment of tense. This framework partly fails to account for the interpretation of vague utterances. We note also that the Reichenbachian approach vacillates between the semantic and the pragmatic treatment of this category; without clearly indicating which role is played by semantics and which by pragmatics.

Even model-theoretic, truth-conditional and possible worlds treatments of aspect and tense are in part inadequate. Chapter five thus indicates informally how the truth conditions formalized by Dowty (1977, 1979), Bennett (1981), Vlach (1981) and others, and proposed in part for the interpretation of particularly vague or temporally indeterminate utterances, attempt and largely fail to incorporate pragmatic factors. Finally, chapter six indicates what type of pragmatic theory might be adopted for the interpretation of these vague utterances. We argue for the adoption of the Gricean type of pragmatics;

not in its state as formalized by Gazdar (1979) and others, but in its extended form as presented by Sperber & Wilson (ibid.) to account for the appropriate assignment of reference for vague or indeterminate utterances generally.

Linguistic studies tend to be ephemeral these days. And with the proliferation of theories of aspect and tense that one finds in the literature, it is difficult to claim that the solutions proposed for the interpretation of aspect and tense here, are even conclusive. Perhaps the only lasting contribution that this thesis will have made may be that of speculating with illustrative data from Yao, Chewa and English that aspect and tense are categories which are morphologically marked in some languages and lexicalized in others ( and both in yet others); and that in either case, a better picture for the interpretation of aspect and tense emerges only when they are treated sententially ( covertly).



FOOTNOTES TO CHAPTER ONE

1. Although these two languages are generally referred to as ChiYao and ChiCheŵa, i.e. with their initial class prefix, we shall follow Whiteley (1966), Watkins (1937) and others who simply refer to them as Yao and Cheŵa respectively. Often we shall take Y, C and E to stand for these two languages and English throughout this study, keeping that order unless otherwise stated.

2. The term Cheŵa as used by Watkins (1937) referred to the Central Malaŵi dialect of what used to be known as ChiNyanja (or simply Nyanja), a Central African language whose Southern Malaŵi dialect (exemplified by the sentences in this study), was standard in Malaŵi, Zambia and Mozambique. In Malaŵi however, Nyanja is now referred to as Cheŵa (the decision was largely political), though it retains the old name in Zambia and Mozambique. Yao is spoken by roughly one and half million people and Cheŵa/Nyanja by roughly six million people (these largely conservative figures refer to speakers in the whole region). The majority of the Yao and Cheŵa/Nyanja speakers however, live in Malaŵi.

3. For a typical Bantu sentence structure the Yao and Cheŵa treatments by Whiteley, 1966; and Watkins, 1937, are sufficient. Generally (a) below:

- (a)    i        S  $\longrightarrow$  NP   VP  
          ii      VP  $\longrightarrow$  V   NP  
          iii     V  $\longrightarrow$  [sp + a/t + (a/t) + (op) + vr + (a/ve)]

is sufficient to indicate the structure of a typical Bantu sentence. What we will be concerned with in this study is (a) iii. In (a) iii, sp stands for subject prefix, a/t for aspect or tense marker, op for object prefix, vr for the verb root (or radical), a/ve for aspectual or verb extension markers. A typical Yao example might be (b).

- (b)    Wájàbù à + kù + sà + ch̀ + lyá + g̀à    ch̀jùnì  
          NP    sp   a/t   a/t    op.    vr    a    NP  
          he   cont.hab.   it    eat    iter. bird  
          (Wajabu eats bird)

Notice that sp and op generally copy features of the subject and object NPs respectively, i.e. reflecting the class and number of the NPs in the process. The cont., hab. and iter. stand for "continuous, habitual and iterative" markers respectively. In other words, (b) is best interpreted as: It is Wajabu's habit (it is characteristic of him) to eat birds.

As for the tones, we assume that there are four "basic" tones: low, high, low-high and high-low. The knowledge of these is sufficient not only for uttering the sentences or words, but also for the purposes of disambiguation or the appropriate assignment of meaning.

CHAPTER TWO

ON MARKING, INTERPRETING AND UNDERSTANDING  
ASPECT (AND TENSE) ACROSS LANGUAGE

"The lexical entry for a concept provides the information necessary for coding it into natural language .. it can differ through time or across speakers without altering the concept itself: for example, an English and a French speaker may share the concept cat, while attaching different lexical entries to it, one coding it into English and the other into French; in the case of a bilingual speaker there will be more than one lexical entry per concept."

Sperber & Wilson (MS:14-15),  
Language and Relevance: Foundations of Pragmatic Theory.

## 2.0 Introduction

In this chapter we present a theoretical overview aimed at clarifying the nature of aspect (and to some extent tense) in the interpretation of utterances in natural languages. We start by making a claim which is obvious from the literature, that the proper treatment of aspect and tense across languages with superficially disparate morphological structure (as Yao and Chewa on the one hand and English on the other clearly are), must be one which construes aspect (and tense) as theoretical (conceptual) categories. In the first section, we assume simply that while some languages grammaticalize aspect or mark it morpho-phonologically others lexicalize it. We argue that in either case, a fuller understanding of how we interpret aspect (and tense) in utterances is provided when we treat them at a level which is neutral to surface differences between languages, e.g. at the propositional (conceptual) level.

Taking this line does not however, exclude the fact that in Slavic aspect is systematically morphologically marked. We take up the issue of aspectual marking and markedness generally in the second section where we indicate that we not only don't have an appropriate

theory of markedness which is applicable for interpretation of aspect and tense at the conceptual level, but that conceiving of aspect and tense at this level necessitates our taking markedness generally less seriously. We conclude this section by indicating that aspectual and tense marking is taken merely as a term which is conveniently used to describe default choice of an element in a given system: morpho-phonological, syntactic, and semantic. And in the interpretation of aspect and tense what is important is not necessarily the markedness per se, but knowledge of "default" meanings (Cf. Smith N.V 1981) and "conventional" as well as "conversational" implicatures (Cf. Grice, 1968, 1975 etc.) that aspectual and tense markers (as well as lexical items) have in the utterances they appear.

The last section of the chapter looks at one or two definitions of aspect which corroborate the position we hold about how it ought to be treated as a theoretical primitive across language. It is the definition which takes time as the main defining feature of aspect that we find most illuminating. Friedrich's (1974) definition is especially useful because it sees aspect as the duration or punctuality (or the time stretch, long or short) which inheres in "words" and "constructions". This indicates that to understand aspect we must go beyond the words sometimes and see how the time is encoded in utterances: the scene for

the semantic and the pragmatic interpretation of aspect (and tense) is set.

## 2.1 A Grammatical Category Across Language

A cross-linguistic treatment of the category "aspect" in Yao, Chewa<sup>1</sup> and English naturally raises several age-old questions of both a theoretical and empirical kind. We should like to address ourselves to one or two of these briefly and informally here. First then, we note the rather obvious fact that Yao and Chewa belong to the Bantu group of agglutinative languages of Africa which have little superficially in common with English except perhaps that the three languages share the property of having SVO as their word order. Second, and following from this, comparison of a grammatical category like aspect across languages of such disparate morphological structure might therefore be considered to be an unproductive enterprise. This is especially so because aspect is traditionally claimed to be a phenomenon which has had its origins in and developed largely for some Indo-European, particularly Slavonic, languages i.e. aspect, by and large, is sometimes considered to be non-existent in English and Bantu languages. The question that needs immediate answer is therefore this: where category X in language  $L_1$  is not overtly i.e.

morphologically, marked as it is in language  $L_2$ , in what form does this category exist in  $L_1$  if its existence is still to be defended in that language?

How we propose to answer this question can be demonstrated by a brief illustrative digression. The task we are engaged in is reminiscent of the current linguistic controversy concerning other grammatical categories. The controversy concerning the status of the "auxiliary" (AUX) category in natural language immediately comes to mind. The issues themselves are complicated and in attempting to isolate the salient features of the controversy here, we do not intend to trivialize them. But the antagonists in the AUX category controversy, as represented for example by Pullum (1981) and Kaisse (1981) on the one hand, have effectively been arguing inter alia, against our taking for granted as a given language universal such a traditionally assumed category as the AUX without seriously challenging its very existence in natural language. On the other side are Akmajian et al. (1979) and Steele et al. (1981) who insist by shuffling the morphological, syntactic and semantic structure of several languages that AUX is indeed a universal category which, according to them, must be treated within Universal Grammar: indeed, this category is tacitly used to

exemplify the existence of Universal Grammar itself. And the battle threatens to rage on with the two camps so polarized that they appear almost mutually uncomprehending.

The moral of this digression is what we take to be the central position adopted throughout this essay: that is, we assume that however clearly marked (e.g. morphologically) categories like aspect and tense might be in one language, and however unmarked they might be in other languages, generally speaking, natural language has other means of building in or expressing the "concepts" underlying such categories. This is in line with the central message implicit in the epigraph at the top of this chapter. When we lament the absence of the treatment of aspect in the pedagogical grammars of Bantu (C.f. footnote 1 below) then we are rejecting the claim implicit in the traditional literature that Bantu fails to express the concepts inherent in this category i.e. we accept 'effability'. But let us briefly indicate what these traditional claims are.

A careful study of the literature on aspect indicates that there is one uncompromising line adopted by some Slavonic linguists about how Slavonic aspect is. Zandvoort (1962) is one of them, as is witnessed by his



own words recently quoted by Bache (1982: 57-58):

The plain statement 'Aspect is a conception which does not exist in English Grammar' may be hard to digest for some linguists who ... refuse to take the character of aspect in Slavonic as an absolute standard. But what is the use, also from the standpoint of general linguistics, of a term which in the Germanic languages 'means something entirely different from what it means in the Slavonic languages'...?

For one wanting to describe and interpret aspect across language, the situation appears hopeless then, given this hardline position.

This position is reminiscent of another line of thought propagated by the Ugandan theologian, Mbiti (1969) about tense and the expression of time in East African languages. Mbiti claims that Africans from East Africa and speaking Kikamba or Gikuyu have virtually no concept of the distant future because there are "no concrete words or expressions to convey the idea of a distant future" (p.17) and he invokes an elaborate Kikamba and Gikuyu main verb tense system to illustrate his point (Cf. Mbiti, 1969: table at p.18)

Mbiti is obviously one of those theologians who never grow beyond their Whorfian position in their thinking about human cultures. But as Gillies (1980) and others (Cf. Ricoeur, ed. 1976) have clearly indicated, there must be something seriously amiss about the accuracy of Mbiti's theology, let alone, metaphysics. For a language not to possess concrete words or morphological markers for the distant future for instance, does not necessarily condemn a whole people to the "primitivism" which Mbiti consciously or unconsciously implies. There must be other ways by which East Africans can express the notion of distant future, otherwise Ugandans in particular (amongst whom there are so many saints) and East Africans generally would not embrace Christianity which is dependent on the concept of distant future as they have so staunchly done.

And from the linguistic point of view, Mbiti's claim is refuted by recent research by Johnson (1977, 1981) for instance, who demonstrates using Gikuyu that concepts like "distant" and "immediate" past (and implicitly "distant future") could be handled within her innovative "existential status" which is proposed in order to provide a unified account of time in Gikuyu and Bantu languages generally (more about this in chapter four). We accept, following

Whorf, that languages of the world may not express the same concepts in the same way. What is in contention here however, is the belief that a grammatical category like aspect (or tense) cannot be treated across language as indicated by Zandvoort and implied by Mbiti; that aspect for instance, means something entirely different in Slavic from what it means in other languages. This is patently true if we are talking about the derivational or inflectional morphology of aspect. But as we have indicated, insistence on the morphological markedness of aspect (and tense) leads to perverse generalisations about the absence in some people of concepts of time or to stubborn though inaccurate conclusions about how Slavonic aspect must be.

And our position is not entirely new. The morphological non-parallelism of different languages vis-a-vis AUX for example, has been noted before.

Anderson (1973: 46) has said representatively:

in languages which lack an auxiliary construction, the simple form (where one exists) of the verb can be used in circumstances in which the auxiliary form would be required in a language like English ....

The point has been noted with regard to tense as well. For example, Dubs (1958) reviewing Vendler's (1957) verbal classification, argues that the tense category need not be expected to be inflectionally or derivationally marked in all languages of the world. The concepts expressed by this category in one language might be lexicalized for example, in another language. Dubs (1958: 395) says that Vendler

appears unaware of the fact known to all comparative linguists, namely, that, with unimportant exceptions, only Aryan (Indo-European) languages possess tenses, that is inflections that indicate past, present and future time. The Chinese language, for example, is entirely uninflected and finds no need for any tenses. It goes along quite well by specifying time, when desired, by an adverb, such as "now", "yesterday" and so forth.

Apart from the bizarre claim implicit in Dubs' relegation of many African, Amerindian and Australian languages to the status of "unimportant exceptions", he also utterly misses Vendler's point about the verbal categorial classifications which are proposed. Vendler is aware of the structural difference between languages.

He even concedes that the tests for progressiveness which he uses to classify English verbs and verb phrases would not be applicable to German (Cf. Vendler's 1958: 395-6, reply to Dubs). Ironically then, both Dubs (though rather ignorantly) and Vendler are making the same point, that natural languages can either morphologize or lexicalize time concepts (in certain cases, they can do both in one language).

And the subject is not closed with Dubs and Vendler either. In a recent article on aspect and tense Bach (1981), working within Montague Grammar, similarly dismisses the uncritical assumption of Whorfian Hopi metaphysics which still has considerable influence on comparative linguistics today. Here is a rough paraphrase of his position. That people in different cultural environments speaking radically different languages, cannot share common presuppositions about what the world is like, is an easy tenet to falsify. For example, taking time to be the major defining parameter for tense and aspect across different languages, it can be shown that aspect and tense are effectively language-independent categories. Bach (1981: 79) continues:

Whatever truth there may be in Whorf's account of Hopi metaphysics, I believe that he was simply wrong about the "Standard Average European" metaphysical assumption about

time.... Moreover, ... I have yet to encounter a language in which there is no reflection of the contrasts between states, events, and processes.

As we claimed, each language might impose its own idiosyncratic constraints on widely held concepts. For instance, one language might be more circumlocutory in expressing or interpreting one concept than another. Nonetheless communication (comprehension or retrieval of information) is possible. On this point Bach (ibid) cautions, in fact: "This is not to say that the use they (categories) are put to or the reflexes that we find are identical across languages."

To come back to aspect, Garey (1957: 96) implicitly makes the point that if aspect is not marked overtly in one language for such aspectual contrasts as perfectivity and imperfectivity, telicity and atelicity and other "privative oppositions", there are other means in which these concepts are expressed or interpreted. And most of the recent literature on aspect <sup>2</sup> even from Slavonic linguists takes the view that aspect must be treated as a theoretical primitive, that is, aspectual concepts such as inception, completion etc. which are expressed by inflectional and derivational morphology in Slavonic

languages can also be otherwise expressed in other languages. For example, arguing along the lines of Verkuyl, Åqvist and other Slavic linguists, Hoepelman (1974: 161) representatively notes:

It has for a long time been thought, that the aspects are a feature characterising only slavic languages, but recent studies show that they can be assumed in the basis of other languages as well ...

And the rest of the article is a model-theoretic demonstration of how aspect can be treated along these lines. And this position is held without necessarily rejecting the fact that in Slavonic languages aspectual oppositions are systematically morphologized. To conclude the point then, there is evidence from the literature that although aspect (and tense) may be morphologically marked in languages, this should be treated as the first stage in understanding the category. Otherwise, after this surface level has been identified, we must move on to the abstract (or in Chomskyan terms the logical form) level. Of the two, the abstract (conceptual) level is the most likely to produce a meaningful treatment of a given grammatical category across language.

Finally, further motivation for the claim that aspect ought to be taken as a conceptual category in a comparative description across several languages also comes from data from a related discipline. Bronckart and Sinclair (1973) quoting Ferreire's (1971) findings on research done amongst French children on language acquisition, claim that there is evidence from such cognitive studies to show that aspect, its morphological configurational complexity in Russian and Slavic generally notwithstanding, is in fact, a much easier concept for children to grasp than tense for instance. If this claim is taken seriously, as indeed it is by Lyons (1977: 705), Miller and Johnson-Laird (1976) and others, we can only conclude that our taking aspect across language as a conceptual primitive could only enhance the understanding of this otherwise mysterious category.

## 2.2 A note on aspectual markedness generally

Treating aspect across language as a conceptual primitive commits us however, to declaring our stand with regard to aspectual marking which has been assumed traditionally to be the central phenomenon in aspectual studies. Let us make a quick run-through of one or two



definitions of the markedness of aspect which have influenced the thinking of such Slavonic linguists as Zandvoort.

The standard definition of the markedness of aspect which has been interpreted differently by various analysts was first proposed by Jakobson (1957: 136) <sup>3</sup> in a pioneering work on verbal aspect in Russian thus:

The general meaning of a marked category states the presence of a certain (whether positive or negative) property A; the general meaning of the corresponding unmarked category states nothing about the presence of A, and is used chiefly, but not exclusively, to indicate the absence of A. The unmarked term is always the negative of the marked term, but on the level of general meaning the opposition of the two contradictories may be interpreted as "statements of A" vs. "no statement of A", whereas on the level of "narrowed", nuclear meanings, we encounter the opposition "statement of A" vs. statement of non-A".

This definition is instantiated by Jakobson's (p.137) own examples of Russian verbal aspect, one of which, rather truncated, we partially re-order in :

1. (a) pet' (to sing)
- (b) spet' (to complete singing)
- (c) dopevat' (to be in the final stage of singing)
- (d) dopet' (to complete the final stage of singing)

According to the definition of markedness given above, 1 (b) is morphologically marked for completion, that is, there appears to be a one-to-one correspondence between the presence of s- (or rather the combination of s- + pet') and the property (meaning) of completion which the newly combined item signals. It is fair to assume therefore that as long as the product of the combination of the basic (unmarked) root of the verb pet' and the marker s- signals completion as a value, we have a sufficient case of markedness by the above definition. But 1(a) which is the basic, unmarked, form of the opposition, is neutral to such interpretation; that is, it denotes neither completion nor denial of completion of singing.

This type of markedness is the traditional Praguean definition which, somewhat modified has become standard in phonological studies today i.e. the kind where markedness values are mapped onto the positive or negative specification of some distinctive feature, as developed and established to a large degree by Chomsky and Halle (1968).

One other point might need making in respect of 1(a) - (d). Both 1 (c) and 1 (d) are morphologically marked but 1 (c) is doubly marked, if we take the marked member to be the one that has an extra morphological element from its opposing pair 1 (d); that is, imperfectivity can also be morphologically marked. Comrie (1976: 112) makes a similar point when he says that in Italian, Spanish, and English imperfectivity is overtly marked. This matter is worth recording because the impression is often given in the literature that it is what indicates perfectivity (or boundedness, completion etc) which is always the marked member in a given aspectual opposition, and that the basic member, which is often assumed to lexicalize imperfectivity (or incompleteness, progressiveness etc.) is considered to be always unmarked. Though this may be the case with some languages, it is definitely not true of others.

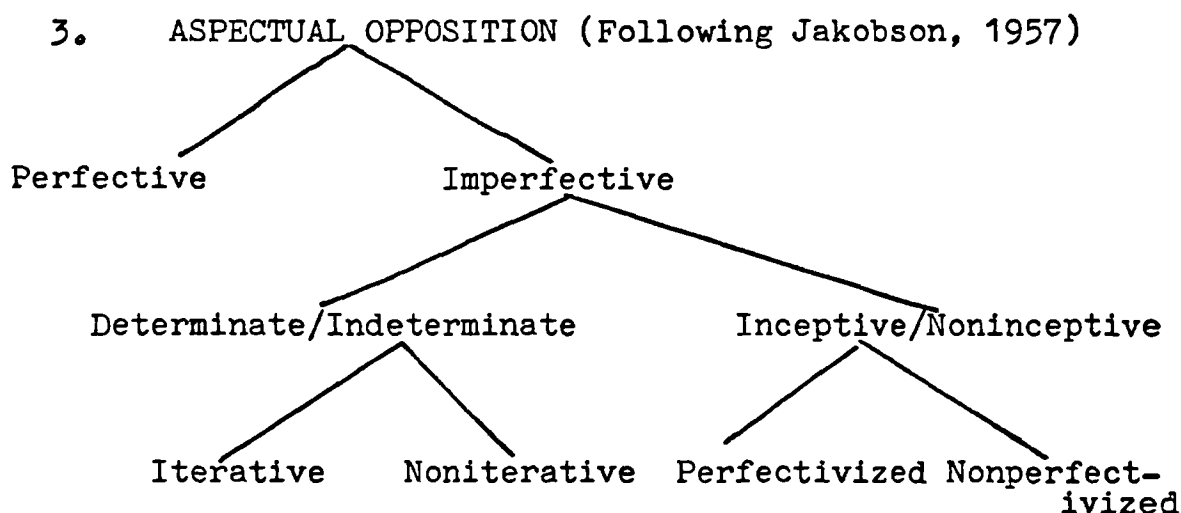
The above cases in 1 involve the marking of the contrast completion and non-completion or perfectivity and imperfectivity. But there are other cases of aspectual marking.

2. (a) Russian: (i) spat' (sleep)  
(ii) pospat' (sleep for a short while)  
(b) Finnish: (i) levätä (rest)  
(ii) levähtää (rest for a short while)

The examples in 2 (taken from Carlson, 1981: 33) are clear cases of morphological and semantic marking where derivational suffixes -hta and po- for Finnish and Russian respectively mark a specified although vaguely delimited, interval of time of "sleep" versus an unspecified interval of time of sleep or one which is neutral to specificity.

We can now see why the notion of "privative opposition" embedded in Jakobson's definition of markedness and exemplified by 1 and 2 has assumed such a great role in the treatment of aspect: verbal aspect concerns the description of contrastive temporal concepts embedded in pairs of elements one of which has one or more extra morphological or semantic item than the other. And these aspectual oppositions for which the notion of markedness applies are numerous. Jakobson (1957: 137-138) for instance, gives five oppositions for aspect in Russian: (a) a perfective versus imperfective contrast which is the central one; (b) within imperfective he gives determinate vs. indeterminate; (c) within imperfective and indeterminate there are iterative vs. non-iterative; (d) within imperfective there is also the inceptive vs. non-inceptive contrast, and finally; (e) within the inceptive there is perfectivized vs. non-perfectivized opposition. Note however, that all these oppositions branch from the one major aspectual opposition

perfective vs. imperfective which is claimed to be the central choice in Russian and other Slavonic languages. These contrasts can best be seen in the form of a tree thus:



The privative opposition as conceived of by Jakobson for the treatment of aspect can therefore be reduced to one main opposition perfectivity vs. imperfectivity with all other facets falling under the imperfectivity node as in 3.

Where these aspectual concepts are lexicalized rather than morphologized however, markedness has tended to be associated with the different manifestations of the temporal stretch which is assumed to be entailed by the verb phrases (VPs) for instance. Some VPs (or the propositions which they partially express) entail durative time, punctual time, dynamic time, progressive time etc. of the events, processes or states which they describe. On these terms,

sentences or propositions are marked for such oppositions as stative vs. non-stative, durative vs. non-durative, punctual vs. non-punctual, progressive vs. non-progressive etc. (Cf. Lyons, 1977: 708).

On similar lines, Holisky (1981: 128) reduces these contrasts for Georgian to only two. What is referred to as "punctual" aspect subsumes aspectual concepts like perfectivity, completion, inception, boundedness, non-durative, non-dynamic etc. And "linear" aspect takes account of durative, dynamic, progressive, non-completive, iterative, habitual etc. concepts. The literature also refers to punctual and linear aspect by another more common term. When VPs, adverbs (ADVs) or affixes, singly or in their various combinations in utterances or the propositions expressed by them are considered in contexts (more about which in the next chapter), aspect is said to manifest itself in the form of instants, intervals or subintervals of time, some of which are open or closed etc. The point that needs emphasizing at this stage is this, that as aspect is treated within modern linguistic terms (e.g. within model-theoretic, truth-conditional or possible worlds semantics), we hear less and less about its markedness. In other words, modern extensions of Jakobson's definition of markedness for aspect naturally lead to the treatment of this category at what we called the conceptual level.

Perhaps the clearest instance is provided by Kučera (1981) who, in extending Jakobson's definition of the markedness of aspect for Czech, defines an aspectually marked category thus:

4. MARKED = LM (lexical meaning) +  $\alpha$   
(distinctive feature)

UNMARKED = LM (no indication of  $\alpha$  or, in certain contexts  $-\alpha$ ).

This way of formalizing markedness crystallizes the elegance of Jakobson's definition. VPs for instance, ought to be treated for aspect first lexically before the influence of extra distinctive features is considered. And armed with Vendler (1957), Kenny (1963), Verkuyl (1972, 1978 etc), Dowty (1977, 1979) and others who assume that VPs, NPs, ADVs and affixes all have inherent time schemata which are the defining properties for their aspectual character, we can demonstrate why 4 is accurate. Furthermore, we can now see why  $L_1$  which might not have affixes that express aspectual concepts might equally express them through their VPs or ADVs etc.

The limitation of rule 4 above however, might lie in our assuming that all VPs for example, without their added morphological or semantic distinctive features are necessarily unmarked. As Kučera (pp 181-188) himself amply demonstrates, 4 has tended to be tied to the

morphology of aspect, which is a language-specific way of treating aspect from which Kučera moves away. All in all, when we view utterances from the standpoint of their contribution to propositional structure, we are bound to take morphological markedness less seriously than is customary, even if we do not reject it entirely.

We have another motivation for taking aspectual markedness less seriously however. The theory of markedness which is applicable to the interpretation of aspect and tense across language at the propositional level as we envisage it here is simply not available. Even the proposals made in a recent volume (Cf. Belletti et al. eds., 1981) dedicated to the "Theory of markedness in generative grammar" are applicable to the marking of aspect only in a very general way. Obviously the theories themselves may not be intended for the interpretation of utterances as we might wish them to be; but even that aside, of all the contributors to the GLOW volume indicated (Chomsky included) for instance, only Kean seriously bothers to show what the content of a modern markedness theory might look like. Even hers however, does not seem applicable to the treatment of aspect at the conceptual level that we have in mind. And Kean herself (1981: 559) makes the most sceptical remark about markedness in the words:



While, with increasing frequency, one encounters references to markedness in the literature, such discussions as there are typically take place in the absence of any attempt to define what the proper domain of the markedness theories is or to characterize their role in general linguistic theory. Rather, what one usually finds is that there is an implied assumption that it is well understood what theories of markedness are all about ...

When we talk about the marking of aspect and tense in the next two chapters then, we are in effect claiming no more than that there are affixes in natural language that signal certain aspectual or tense concepts or which are associated with them. Where aspectual concepts are lexicalized, we will talk about semantic marking without adhering to any new theory of "markedness". In other words, aspectual or tense marking is construed here as a term conveniently used to describe or interpret an item in a given system: phonological, morphological, syntactic or semantic. On these terms, unmarkedness is merely default choice of one term in a given system.

Before we close this section it might be in order to indicate briefly the important role played by subjective judgement or choice in marking aspect. The point is noted throughout the literature. Forsyth (1970: 356) indicates how subjective choice is at work in the interpretation of aspect in Russian generally. Comrie (1976: 112) also notes that there is what might be called an asymmetrical (i.e. one-way) relationship between a marked member and an unmarked one in a given pair. He puts the relevant point this way:

The meaning of the unmarked category can encompass that of its marked counterpart .. where overt expression of the meaning of the marked category is always optional .. i.e. where the unmarked category can always be used even in a situation where the marked category would also be appropriate.

On these terms, 1(a) in Jakobson's Russian example above, can be used to express the concept that the marked member of this opposition 1(b) might be expected to express. And this is supposed to hold for all the cases of this type of opposition. The opposite case however, where the marked member expresses the concept which the unmarked member is assumed to express, is not supposed to hold. This far, we

can say that the use of the marked member may be redundant.

But Friedrich (1974: 30) indicates that in the case of the Greek aorist, the perfective (the marked member) has other sub-categories which can be used to refer to imperfectivity, hence implying that in Greek the marked category could also be used to refer to what "normally" (i.e. conventionally *à la Grice*) might be expressed by the unmarked category. The important point to remember about this observation is that the decision between markedness and unmarkedness can sometimes be subjectively determined (or otherwise determined by specific contexts).

The role that subjective choice might play in deciding whether an item is marked or not has also been made (and almost exhausted) with regard to the other category we are concerned with: tense. Leech (1971) and in a slightly different context Smith, N.V. (1981 ) and many others, have indicated that although tense markers have "default" meaning, that is, although tense markers signal present time, past time and future time for instance, given appropriate contexts, the times signalled by these markers can be overruled without inducing any ungrammaticality or incomprehension of the utterances they express. The phenomenon whereby the meaning of a marked member of a

given category might be overruled in contexts, is therefore widespread across other grammatical categories as well. We should not be dismayed to note them or test their applicability for aspect; but more seriously this is another motivation for treating aspect at the propositional (conceptual) level.

And this has other important consequences. As we clearly demonstrate in the next chapter, in the treatment of utterances for aspect and tense generally, it is wise to take the distinction made by Grice (1968 etc.) between the "conventional implicatures" (or meaning) of VPs, ADVs, aspectual and tense markers or the propositions which they express which constitute their semantics on the one hand and the "conversational implicatures" encoded in utterances where such VPs, ADVs and markers figure in contexts, constituting their pragmatics, on the other.

In conclusion then, whether markedness comes in or not, the interpretation of aspect and tense depends on "default" meanings that lexical items and markers have; but the speakers'/hearers' subjective choice or judgement which may annul the inherent meaning of a marked member in an aspectual opposition for instance, must also be taken seriously as an important part of the treatment of aspect and tense across language generally.

### 2.3 Towards a working definition of aspect

In this section, we take a few definitions of aspect which corroborate our claim that we treat this grammatical category across language conceptually. About aspect Lyons (1977: 705) says:

The term "aspect" is currently used by linguists as the rather unsatisfactory, but conventionally accepted, translational equivalent of the term that is employed in Russian ('vid') to refer to the opposition perfective and imperfective in Slavonic languages. Usually, though not invariably, it is extended to cover a variety of other oppositions, in so far as they are grammaticalised in the structure of particular languages - oppositions based upon the notions of duration, instantaneity, frequency, initiation, completion etc.

This definition is broadly consonant with Comrie's (1976: 3) which takes aspect as "different ways of viewing the internal temporal constituency of a situation". We assume therefore that aspect concerns different ways of viewing temporal notions such as duration, initiation etc. though Comrie is vague about what constitutes the "situation"

(Cf. Macaulay's, 1978 review of Comrie and Friedrich for other limitations of the definitions of aspect).

To understand Comrie's "internal temporal constituency of a situation" perhaps we must turn to Friedrich (1974: S1) who defines aspect generally thus:

Aspect, by one general definition,  
signifies the relative duration or  
punctuality along a time line that  
may inhere in words or constructions.

Friedrich's definition of aspect hinges on the notion of a temporal line which is not necessarily one-directional, although discussions which take the temporal continuum or line to be the major defining characteristic of aspect tend to assume its one-dimensional feature (Cf. Dowty and those linguists who work within interval semantics e.g. Kamp, 1979).<sup>4</sup> Note also that "duration" and "punctuality" are to be taken as "relative" which captures the opposition embedded in Lyons' definition. And in a truth-conditional treatment duration and punctuality are usually referred to by the interval and the instant of time respectively. That is, propositions which are characteristically durative are evaluated for their truth at intervals of time and punctual propositions are true at instants of time (though at times the truth of the proposition at an interval of time entails its truth at instants of time too).

Alternatively, these intervals or instants of time are to be mapped or located on the time line in order for us to understand the internal mechanism of aspect. Note finally, that the intervals or instants of time (duration or punctuality) have to be assumed to inhere in "words" and "constructions". We can now see why Friedrich's definition is the most fruitful. It is in line with the claim made by Vendler (1957), Kenny (1963), Garey (1957), Verkuyl (1972 etc.), Dowty (1977, 1979) and others that VPs, NPs, ADVs etc. have inherent time schemata by which they are classified. As we indicate in the next chapter, a careful study of the verbal categories as proposed by Vendler and others shows how such aspectual concepts as inception, completion, habituality, instantaneity, iteration, continuity, etc which are systematically morphologized in Slavic are clearly characterized in VPs or the propositions which they express.

In treating aspect across languages like Yao, Chewa and English then, we shall assume following Sperber and Wilson in the above epigraph that such concepts as inception, completion etc can be expressed morphologically, lexically, sententially or propositionally in different languages without changing them.

## 2.4 Conclusion

Our argumentation has led us to the conclusion that in Slavic aspectual concepts (e.g. completion, boundedness, inception, habituality etc.) are expressed predominantly by inflectional and derivational morphology. But as we are going to show in the next chapter, there are languages like Yao, Chewa and English which express such concepts by and large lexically. And given the verbal categories proposed for natural language according to the time schemata which they entail, we can indicate how such a mysterious category as aspect could be demystified when treated language-independently. It is to a demonstration of this that we must now turn.



FOOTNOTES TO CHAPTER TWO

1. This chapter and the next concentrate on "aspect". "Tense" in Yao and Chewa, however poorly analyzed, has had at least some treatment in such pedagogical grammars as Sanderson (1922) and Whiteley (1966) for Yao and Watkins (1937) and Price (1962) for Chewa. But aspect has been largely ignored in such studies. It is aspect therefore, rather than tense, that requires the more immediate attention in the description and interpretation of these languages and, indeed, of African languages generally. We discuss tense in chapter four.

The need to concentrate on aspect is also motivated by a glance at the descriptions of African languages themselves, where aspect is considered to be almost non-existent (Cf. Welmers, 1973). Only Hausa appears to have been "discovered" to be aspectual (Cf. Cowan & Schuh, 1976) in the sense that in Hausa aspect is marked morphologically almost to the same extent as it is in Slavic. But Cowan & Schuh's aspectual description of Hausa is not extensive enough to show its influence on linguistic theory generally for example. This is understandable.

It is also understandable that "verbal aspect" should have been so poorly treated in the description of African

languages: verbal aspect has tended to be the strict preserve of Slavonic languages where it is more clearly morphologized or marked than in English for instance. Also, the earliest grammarians of African languages (most of whom were West Europeans) could not bring into Africa a linguistic tradition of the description of "verbal aspect" which was largely alien to the description of West European languages.

But the situation is changing fast. On the African scene, Johnson (1977, 1981) has recently indicated for example, that aspect generally not only exists in such Bantu languages as Gikuyu, but that it exists in such a way that linguistic theory itself is positively influenced. Her (1981) innovative category "existential status", proposed in order to account within a unified description for the appropriate interpretation of aspectual and tense phenomena specific to that Kenyan language for instance, is a case in point.

Moreover, any truth-conditional, model-theoretic or possible worlds treatment of aspect and tense, be it for Slavic or other languages, makes a tacit assumption of the universal existence of aspect in natural language (Cf. Åqvist, Hoepelman, Dowty etc.). Even confused overviews intended to give a general feel for the nature of aspect

in Slavic and other languages, indicate how aspect really ought to be treated at the theoretical (conceptual) level rather than merely at the morphological level where it had been left for many years (Cf. Majewicz, 1982).

2. See for example, Friedrich, 1974; Comrie, 1976; Lyons, 1977; Verkuyl<sup>1</sup>, 1972, 1973, 1976, 1978; and the articles in Tedeschi & Zaenen, eds: 1981; and for one important case study concerning an African language (Gikuyu spoken in Uganda, Kenya and Tanzania) see Johnson, 1977, 1981. See also the bibliography for others.

3. Although Jakobson's article in question first appeared in 1957, it is now more accessible in the second volume of his Selected Writings: Word and Language. All the pages we quote here refer to this volume.

4. See Platzack (1979: 52) who, following Goldsmith & Woisetschlaeger claims that "the representation of time as a one-dimensional line is not a specific enough model". See also Newton-Smith (1980) for a discussion of the structure of time which includes non-linear time e.g. branching time. The notion of branching time is also usually contained in discussions of future tense or time in natural language; see for example, Tedeschi(1981).

## CHAPTER THREE

### VERBAL CATEGORIES, MARKERS AND ASPECT IN YAO, CHEWA AND ENGLISH

#### 3.0 Introduction

In this chapter we demonstrate that such concepts as inception, completion, continuity, habituality, iteration, etc. which define "verbal aspect" and are systematically grammaticalized in Slavic are, by and large, lexicalized in Yao, Chewa and English; and only to a small extent grammaticalized. To illustrate how these aspectual concepts are lexicalized in natural language generally, and in Yao, Chewa and English in particular, we take as our point of departure, the discussion of the verbal categories proposed by Vendler (1957) and Kenny (1963) and elaborated by Dowty (1977, 1979), Mourelatos (1981) and others. We indicate specifically how the time schemata which Vendler and others have assumed to characterize sets of verbs and verb phrases in natural language are in fact, what Slavonic linguists have all along taken to be the defining features of verbal aspect. But as we indicate, VPs are not alone in encoding these time schemata. Adverbials and noun phrases as well as morphological markers also encode the same time structures as VPs.

Building on the proposals made by Verkuyl (1972 etc.), Declerck (1979a, b) and others we therefore indicate that a more complete picture of how language lexicalizes and grammaticalizes aspectual concepts (specifically in Yao and Cheŵa), emerges after we have treated the VPs in a given category in the context of items from such categories as adverbials, noun phrases etc. (that is, if we look at aspect sententially).

We conclude by suggesting that if VPs in a given category or any aspectual markers of the utterances in which they figure are semantically multivalent, as Mourelatos (1981:196) would have it, and this multivalence is not resolved semantically, then we have to go beyond semantics and search for the pragmatic principles that cause such VPs or markers or constructions to change their category or the concepts which they intrinsically signal. In other words, apart from the indeterminacy of the category to which certain VPs (e.g. "see") or certain markers (e.g. the progressive marker -ku- in Yao and Cheŵa) or certain constructions might naturally belong (Cf. below), there are both linguistic and extra-linguistic factors which cause speakers to use a VP of one category to refer to a state, an event or a process which another VP might describe. One such factor is the speaker's choice of the relevant item

in some context, i.e. the issue must be resolved by pragmatics.

### 3.1 The Limitations of the Vendlerian Verbal Categories

Before indicating how the verbal categories proposed by Vendler and others relate to the description and interpretation of aspect, let us make a few remarks about some widely acknowledged limitations of the verbal classification which we adopt. First, we accept that the verbal categories which we discuss below were not proposed with the specific intention of describing or interpreting the linguistic facet of aspect. However, their obvious relevance to aspectual matters renders their exploitation essential.

Secondly, and perhaps more seriously, Vendler himself concedes that there are verbs like "see" for example, which are "puzzling" as they do not seem to belong to any "natural class" of verbs. The implication here is that the verbal categories proposed might not therefore be reliable in reflecting facts about the real world. Our reply is this: the fact that some VPs are multicategorical need not nullify the whole system. We assume with Lyons (1981) and others for example, that it is a common feature of almost all classifications of linguistic material which might be called "proto-typical" in outlook, that certain members of the proposed categories be "fuzzy" or indeterminate. This

assumption appears to be supported by recent research in cognitive studies (especially from that branch known as the "semantic memory theory"). Hampton (1982) for example, reports that on the interpretation of natural categories, that is, on deciding whether an item belongs to one category or another subjects consistently accept the truth of certain category statements in spite of the fact that they are aware of counter-examples. In such situations, subjects take sentences like "an item A belongs to the category X" to mean that the statement is "true" (either by testing the item for class inclusion or for overlap of semantic features with other items or both) only "typically" or "generally speaking". The quick answer to our query then is: we suggest that in those cases where VPs are indeterminate as to the category to which they belong, we take these verbal categories as a guide to their use rather than as a rule.

Finally, the progressive-form test which is repeatedly used by Vendler and others to classify the VPs, (that is, the division of the VPs according to whether or not they can co-occur with the progressive morphological marker) is not universally applicable. This is recognized by Vendler himself however, when he says, "... in German I could not argue from the difference between verbs that do and those that do not admit continuous tense ..." (Cf. Vendler, 1958: 395-396, Philosophical Review, LXIV). In

fact, below we ignore the progressive-form test for the classification of the VPs because all VPs in Yao and Chewa take the progressive marker without inducing ungrammaticality of the sentences or utterances in which they appear (as in the case of German noted by Vendler above). We assume therefore that this test is specific to languages like English. Secondly, the discussion of the progressive marker in Yao and Chewa is provided separately though briefly below, in order to minimize the confusion indicated in the literature as to whether the progressive marks aspect or tense.<sup>1</sup>

It is the entailment tests developed largely by Kenny (1963) as well as Vendler, Dowty (1977, 1979) and others of course, that we exploit for the classification of the VPs below. The entailment tests are not only to a large extent language-independent, but more important, they set the scene for a better understanding of the truth-conditional treatment of aspect which permeates the literature and which we discuss rather informally in the last two chapters. Having cleared this hurdle, we can now proceed to consider the verbal categories as proposed by Vendler.

### 3.2 The time schemata encoded in activities and states

#### 3.2.1

The first category of VPs which Vendler proposes is



that referred to as "activity" VPs. The following is a small sample:

1. Y: -útúkà	C: -thámángá	E: run
-lílá	-lílà	cry
-tútá ngòlò	-kánkhá ngòlò	push a cart
-kwémbá sònà	-sútá fódya	smoke
-wálángá	-wérèngà	read/count
-ng'ámbilà	-sámbilà	swim
-kwéndá(-jéndá)	-yéndà	walk
-útá	-kókà	pull

The VPs in 1 are characterized by an inherent time stretch which is indefinite (or might be said to flow indefinitely). In other words, the situation described by activity VPs in 1 takes place in an indefinite time span. For example, when the VP is in the progressive form as in 2 where the progressive marker -ku- is used (more about -ku- below),

2. Y: tò-kú-útúkà
C: tì-kù-thámángá
E: we are running

the time span of the running is not specified and, but for extra-linguistic limitations of health, could go on indefinitely.

Another characteristic of activity VPs or the propositions which they might express, includes the fact that the proposition expressed by 2 entails its "perfect" counterpart in:

3. Y: tù-ùtwíché

C: tà-thámángá

E: we have run

This in turn indicates that any part of the time encoded in progressive activity VPs or propositions partly expressed by them has the same value as the whole. Activities are therefore characterized by their inherent homogeneous temporal structure. This explains their easy co-occurrence with durational adverbials or adverbials which denote a closed or open interval of time as in:

4. Y: tù-ùtwíché ólà jímò

C: tà-thámángá ólá límódzì

E: we've run for one hour

And predictably, activity VPs can also co-occur with interval-time ADVs whose temporal path is smaller than the "one hour" above. Ideally, even an indivisible interval (i.e. an instant) time adverbial goes with activity VPs without any danger of inducing ungrammaticality as is exemplified by 5.


5. Y: tù-ùtwíchè pà ténĩ kòlòkò

C: tà-thàmángá pà ténĩ kòlòkò

E: we ran at ten o'clock


Two conclusions can be drawn from this brief though sufficient temporal characterization of activity VPs.

First, the indefinite and homogeneous time stretch which is inherently encoded in activity VPs or the propositions which they express, can be easily represented as an open temporal continuum (or path or line) as in:

6. 

This graphic representation for the aspectual concept of duration is effectively what is implied in Friedrich's definition of aspect which we looked at in the last chapter. The difference might be that in general, duration involves the potential closure of the temporal line and 6 indicates its indefinite continuity.

The temporal stretch denoted by activity VPs could also be represented differently. For example, if (ACT) stands for the activity category of the VP, t, for the time stretch, and [INDE] for the concept of indefiniteness of the time stretch, we might capture the temporal entailment relation for activities in general as in 7:

7. VP  t [INDE]  
(ACT)

The schema in 7 says simply, that an activity VP denotes an indefinite time stretch. Alternatively, 7 implies that the appropriate interpretation of a proposition partially expressed by an activity VP involves the knowledge of the indefinite time stretch which it denotes.

Secondly, the potential for the truth-conditional treatment of the proposition expressed in part by activity VPs can now be seen. With what has just been noted, it is easy to see why we should assign the truth of activity propositions at both the instant and interval or subinterval of time along the lines of Bennett & Partee (1978) and others. That is, the truth of 2 entails the truth of 3, an observation which gathers its relevance in the following chapters.

### 3.2.2

The second verbal category we would like to consider is referred to as "state" and is exemplified by the following short list of VPs:

8. Y: -gānīsyà	C: -gānizà	E: think
-sākā	-fúnà	want/love/like
-sísímà	-zízìlà	be cold
-mānyílìlà	-dzíwà	know
-lólá	-ónà	see
-wá né/-támá né	-khálá ndí	have/contain
-pílíkànà	-mvá	understand/hear
-lámúlà	-lámúlìlà	rule

The VPs in 8 are characterized by the description of states of mind or affairs or qualities. States differ from activities because they are not dynamic whereas activities are. Stative VPs encode an enduring temporal structure, i.e. they can be represented as in 6 above, but their inherent time "endures" over the whole given interval of time (long, short or indefinite). They can therefore be naturally predicated over adverbials which signal closed or open intervals of time because of their inherent temporal durative character as is exemplified by 9 and 10 respectively.

9. Y: Chéwájàbù wà-lámwílé yáká mchèchè

C: Wájàbù à-ná-làmùlílà zákà zínáí

E: Wajabu ruled for four years

10. Y: Chéwájàbù wà-lámwílé ólà jímò

C: Wajabu à-ná-làmùlílà ólá límódzì

E: Wajabu ruled for one hour

In these cases Wajabu's ruling persists or "endures" for the whole of the four year duration in the case of 9 and for the whole of the hour-long duration in the case of 10. It does not make sense to divide the temporal stretch for states into instants or subintervals of time as we might do for activity VPs because, we would like to suggest

there are no gaps in the temporal continuum for stative VPs or the propositions which their utterances might encode. In other words, whereas there may be gaps in the temporal structure for activity VPs or their propositions (Cf. presently below and the last two chapters for a fuller though informal treatment of this point), there are none in states. Consequently, in a truth-conditional treatment of the sentences in 9 or 10, the truth of either of the propositions expressed must be evaluated "for" the whole interval of time over which the state endures.

And where the "stative proposition" is predicated over an instant-time adverbial as in:

11. Y: ChēWájàbù wà-lámwílè kàmbìndì kàmpéfé  
 C: Wájàbù à-ná-lámúlílà kàmphìndì kàmódzì kókhá  
 E: Wajabu ruled for one second only

or as in:

12. Y: ChēWájàbù wà-tándíté kù-lámúlà pà ténì kòlòkò  
 C: Wájàbù à-ná-yàmbà kù-lámúlílà pà ténì kòlòkò  
 E: Wajabu started to rule at ten o'clock

the truth of the proposition expressed by 11 and 12 is evaluated at the said second or at the stroke of ten respectively. <sup>2</sup>

And again following 7 above, we might represent the temporal entailment for stative VPs (STA) (or the propositions which their utterances might express) and the time stretch  $t$ , which among other things is "enduring" [ENDU] as in:

$$13. \text{ VP } \longrightarrow t \text{ [ENDU]} \\ \text{(STA)}$$

The schema in 13 claims that a stative VP (or the proposition it might partially express) entails an enduring time stretch or alternatively might be expected to be predicated over an "enduring" temporal stretch encoded in ADVs for example.

### 3.3 The essential difference between states and activities

We have indicated above that activity and state VPs are similar because they are both durative and they have an indefinite time continuum which is also homogeneous. The graphic representation in 6 therefore sufficiently captures these similarities. However, 6 conceals one major difference between these two verbal categories, which we have already alluded to in passing. It is a difference which deserves further mention because it keeps cropping up in various manifestations in the literature. We will first, simply stipulate the difference between states and

activities; and then proceed to justify our stipulation.

We will assume first then, that the time stretch encoded in activity VPs (or the propositions which they might express) is discrete or has gaps; but the time stretch encoded in state VPs has no gaps. Running is not an enduring activity. One can be said to have been 'running' although one might have in fact, stopped for a minute to pull out a bothersome thorn in one's foot. But once one rules, or loves, or thinks etc.. the state endures (or lasts) for the duration it takes.

The assumption that state VPs denote an enduring time stretch which activity VPs do not, captures another phenomenon which is common in human communication. In ordinary discourse, we often say, using stative VPs like "know", "see" or "understand" etc. that one either knows, sees, understands or one does not. There are no half measures with regard to the processing of such stative utterances. And where half measures exist as when one says one "half sees", "half understands" or one "gradually knows" etc. we suggest that these are cases which indicate "imperfect" seeing etc. with no relation to time at all i.e. such VPs are used in a non-aspectual sense. In some cases such utterances are interpreted as signalling iteration or gradual development of the state (as is exemplified by our interpretation of inchoative sentences: Cf. below).



All this may sound speculative, and it is. But it helps explain why sentences like 14 are unacceptable.

14. \*We are understanding English.

The reason for the nonacceptability of stative sentences like 14 has bothered linguists for many years. Vlach (1981) probably offers the most useful starting point when he says a sentence like 14 is unacceptable because both the state VP "understand" and the progressive marker (operator) denote the same duration of time; the implication is that one of them is therefore redundant. He puts the point this way (p.274), "The function of the progressive operator is to make stative sentences, and, therefore, there is no reason for the progressive to apply to sentences that are already stative" - a point which is made in the spirit of Palmer (1974) as Vlach acknowledges. However, this does not explain why Comrie's (1976) favourite counter-example (in our 15) is grammatical and acceptable:

15. I'm understanding more about quantum mechanics  
as each day goes by.

There is an even more surprising fact which is so obvious that it usually gets forgotten. Throughout the discussion of the verbal categories as proposed by Vendler

and others, it is repeatedly claimed that durative VPs easily co-occur with durative ADVs and/or morphological markers which signal duration or process. Both state VPs and progressive operators (or markers) are claimed to denote durative time. Naturally they ought therefore to co-occur without inducing ungrammaticality or non-acceptability of the sentences in which they appear. Vlach cannot therefore be right about the reason why 14, say, is unacceptable. Whatever he means by "progressive operator" if he is using the term to express the notion of progressivity or continuity (or process) which is often signalled in English by the various forms of "be" + "V - ing" then his rule is, to say the least, incomplete. The concept of PROCESS or progressivity signalled by the progressive operator does not always make activities, or achievements and accomplishments (Cf. below) stative. The function of the progressive operator is not to make stative sentences, it is rather to signal a "process" which goes on in time or to denote an indefinite time stretch which is construed exactly as in activity VP constructions which we have just seen represented in 6.

If we assume that both the progressive marker (operator) and activity VPs denote a time stretch which is indefinite and discrete i.e. has gaps, we can understand why activity VPs and progressive markers should co-occur without creating

ungrammatical or unacceptable constructions and why state VPs which denote gapless time continua should not potentially co-occur with progressive markers which denote discrete time continua: the two time structures clash. And where their presence in one construction is grammatical or acceptable as in 15 above, the construction is not strictly stative; it signals iterative interpretation or a discretely continuous temporal structure encoded largely by the progressive marker whose temporal structure as it were, overwhelms that of the VP.

Let us underline one point however. We do not deny that the progressive marker (or any marker) can make non-stative VPs stative. This fact is not only noted throughout the literature (Cf. Mourelatos, 1981, and others) but in fact, we indicate below that Yao has a special morphological marker "-ga" which, in the context of the progressive (or imperfective) marker "-ku-" signals stativity, i.e. "-ku- + V -ga" has the chief function of inducing stativity. We simply suspect here that with data from Yao and Cheŵa, the major function of the progressive operator (marker) is not to make sentences stative. Their chief function is to denote process or continuity which in the context of certain VPs (e.g. stative VPs) induces an iterative or "inchoative" (Cf. below) interpretation of the utterances in which they appear, thereby often changing their category.

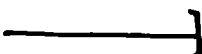
3.4 The time schemata encoded in accomplishment and achievement VPs

3.4.1

The next group of VPs we discuss briefly is that called "accomplishment". It is exemplified by the following short list of VPs:

Y: -jámbùlā líndàndà	C: -jámbùlā dzìrà	E: draw an egg (a circle)
-útúkà mjàhò	-thámángá mjàhò	run a race
-táwá nyumbà	-mángà nyumbá	build a house
-kúlá	-kúlà	grow up
-lámá	-chílà	recover from illness
-mílá mtélá	-mézà mànkhwálà	swallow (take) medicine
-úlágà ngúkú	-phá nkhúkù	kill a chicken
-pángànyà mpàndò	-kónzá mpàndò	make a chair

Broadly speaking accomplishment VPs have an intrinsic time continuum which is usually taken to be closed finally. This is why they are often said to be characteristically durative though the emphasis here is that these VPs express events which proceed towards an end-point. The temporal stretch encoded by such VPs might therefore be captured by the graphic representation in 16:

16. 

With the assumption implicit in the closure of the temporal line in 16, "to make a chair" implies the eventual existence of the chair; "to build a house" is to complete building it; "to draw an egg or a circle" is to complete drawing it etc. (Cf. the last two chapters for further discussion of the limitations of these assumptions). On these terms, accomplishment VPs or their constructions denote what Slavonic linguists have referred to as "completive" aspect, which is morphologized in Slavic. The general rule which might capture these assumptions might take the shape of 17.

$$17. \quad \text{VP} \longrightarrow t \quad [\text{COMPL}]$$

(ACCO)

17 claims that an accomplishment (ACCO) VP denotes a time stretch  $t$ , which is characteristically completive **[COMPL.]**

Working within truth-conditional semantics, the consequences of the schema in 17 are apparent. The interpretation of accomplishment VPs or the processing of propositions partially expressed by them, involves the evaluation of their truth not only for or at the duration of time denoted by the VP but often their truth is evaluated at the end-point of the event or at the closure of the temporal line. For instance, it is normal to assume in

18. Y: ChéWájàbù à-ùtwíchè mjàhò

C: Wájàbù wà-thámángá mjàhò

E: Wajabu has run the race

that the race has now reached its intended finishing line and Wajabu has stopped running. The truth of the proposition expressed by 18 must therefore be assigned at the end-point of the race, not before.

That 17 has limitations with respect to the processing or interpretation of utterances which have accomplishment VPs however, is clearly demonstrated when we consider a sentence like 19 which is in the progressive form. The appropriate interpretation of 19 cannot be provided by appealing to the rule schema in 17 alone.

19. Y: ChéWájàbù à-ùtwíchè-jè mjàhò

C: Wájàbù à-mà-thámángá mjàhò

E: Wajabu was running the race

The first interpretation of 19 might clearly be in accordance with 17, that is, 19 might indicate that Wajabu completed running the race, or that the race reached an end-point. But as we also know Wajabu could have been too tired to continue running the race; that is, the entailment of the completion of the race is cancellable as can be seen from the grammaticality and acceptability of 20:

20. Y: ChéWájàbù à-ùtwíchè-jè mjàhò'wò nàmbó ngánámálá

C: Wájàbù à-mà-thámángá mjàhò'wò kòmà sánàtsìlízè

E: Wajabu was running the race but he did not  
complete it

However, the indeterminacy of interpretation between completive and non-completive reading in 19 to a large extent vanishes when it is taken to indicate past habituality.

The other problem about the interpretation of accomplishment VPs concerns a subset of these VPs which is usually referred to as inchoatives. VPs like -kómálà (Yao), -psyá (Cheŵa) (ripen, mature); -kúlá (Yao), -kúlà (Cheŵa) (grow up, mature) etc. belong to this group. The problem with these VPs and the processing of the propositions which they might partially express is that the end-point which is entailed and is clearly captured by 17 above, is not in fact, clearly demarcated. To put the matter illustratively, if we utter 21,

21. Y: Yémbé sílà sì-kòméle

C: Mángó àjà à-psyà

E: The mangoes are ripe (have ripened)

although the semantic rule represented in 17 indicates that we assume that the expected end-point of the ripening of the mangoes has been reached, common sense tells us that there

might be other stages earlier than this end-point when the mangoes could quite acceptably be referred to as ripe. This is so because these VPs entail a gradually flowing temporal stretch whose end-point is usually subjectively decided upon. What is mature or grown up to us might not be the same to others (although in some cases consensus is possible).

The problem might disappear if we simply claim à la Grice (1975), that with regard to inchoative VPs and the propositions which they partially express, 17 should be interpreted thus: an accomplishment VP which is inchoative "conversationally implicates" its end-point. This will account for the possibility of interpreting such examples as 20 appropriately as well.

### 3.4.2

Finally, let us briefly consider the last VP category referred to as "achievement" VPs which are exemplified by the following short list:

22. Y: -tándá	C:-yámbà	E: start
-málísyà	-málìzà	finish/stop
-símánà	-pézá	find
-tyóká	-chókà	leave
-tándìlà	-yámbìlà	resume
-wá	-fá	die
-págwá	-bádwa	be born
-ng'ánímà	-ng'ánímà	flash
-úlíkà	-phúlíká	explode/burst



The VPs in 22 are characterized by an instantaneous time which they denote. Achievements by definition, are non-durative i.e. they do not normally occur over or throughout a temporal stretch. They do not take a durative or an interval of time adverbial; instead they co-occur with point-time adverbials as in 23:

23. Y: Lítáyàlà lîlà lî-ùlíchè pà ténì kòlòkò

C: Tálàyà lîjà là-phùlíká pà ténì kòlòkò

E: The tyre exploded/burst at ten o'clock

The instantaneous character of achievement VPs indicates that they do not normally take the progressive form without changing their verb category or losing their "instantaneous character". Even where the progressive form occurs as with a VP like "die" in 24:

24. Y: Lítúnú lîlà lî-kú-wá

C: Fìsì ùjà à-kú-fá

E: The hyena is dying

the entailment rule in 25:

25. X is V -ing  $\longrightarrow$  X has V -ed

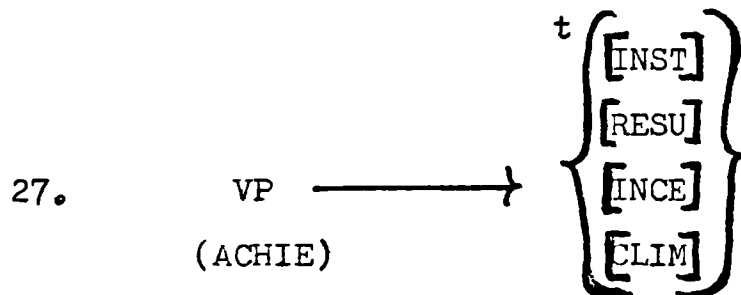
fails to apply. In other words, we cannot deduce from 24 that 26 is true.

26. Y: Lìtúnú lílà lì-wíílé

C: Fìsì ùjà wà-fà

E: The hyena is dead/has died

Achievement VPs can obviously be represented as dots or strokes on a page, which we will not bother indicating. However, if we take (ACHIE) to stand for achievement VPs,  $t$  for the time-point and [INST], [RESU], [INCE], [CLIM] to represent such concepts as instantaneity for VPs like "explode", resumption for VPs like "resume", inception for VPs like "start" and climax or completion for VPs like "end" respectively, we might sum up the time  $t$ , denoted by achievement VPs and the propositions partially expressed by their constructions as:



The schema in 27 claims simply, that an achievement VP or the proposition encoded by the utterance in which it appears entails one of the four aspectual concepts of instantaneity, resumption, inception or climax (i.e. completion) of the event described.

### 3.4.3 Accomplishments and achievements as essentially events

A brief word about the similarities and differences of accomplishment and achievement VPs thus discussed is now in order. First, it is clear that achievements are instantaneous in a way that accomplishments are not. There are VPs like "flash", "explode", "snap" etc which denote dimensionless time and might therefore be said to properly belong to achievement VPs. No similar group of VPs is easily discernible from the accomplishment VP category. On these terms, we can justify the existence of both verbal categories.

There are other VPs however, which belong to either category by chance, as it were. Kenny (1963), Mourelatos (1981) and others have consistently pointed these out, suggesting thereby that accomplishment and achievement VPs ought really to be conflated into one category as "performances" or "events" according to Kenny and Mourelatos respectively. Achievement VPs like "find", "die", "be born", "finish" and accomplishment VPs such as "grow up", "make a chair", "draw a circle" etc. ought really to belong to one category as they all denote a temporal stretch (however short or long) which has a potential end-point. In other words, all these VPs can effectively be represented graphically as in 16 above, without loss of any important generalisations about their internal temporal structure.

It also makes a lot of sense to subsume these categories under one umbrella when we adopt the truth-conditional treatment of aspect.

28. Y: Mwànáchè jùlà tù-m-súménè pà ténì kòlòkò

C: Mwáná ùjà tà-mú-pèzà pà ténì kòlòkò

E: We found (have found) the child at ten o'clock

The achievement VP in 28 (or rather the proposition which it partially expresses) is evaluated for its truth not only at the instant of time provided i.e. ten o'clock but also at any subsequent time after ten. Similarly, the proposition partially expressed by the accomplishment VP in 29:

29. Y: Mwànáchè à-mìsílè sǐngánò pà ténì kòlòkò

C: Mwáná wà-mèzà sǐngánó pà ténì kòlòkò

E: The child (has) swallowed the needle at  
ten o'clock

is normally evaluated for its truth at the appropriate instant (i.e. ten o'clock) and at any subsequent time after ten. Obviously, both swallowing a needle and finding a child take some time stretch to reach their end-point at which their truth is evaluated; both 28 and 29 also take the instantaneous time adverbial "at ten o'clock"; the general similarity of the two VP categories is therefore assured. As long as we are aware of these similarities and

differences between the two VP categories then it should not matter whether we conflate them under "event VPs" or discuss them separately as we have done above.<sup>3</sup>

### 3.5 Verbal reduplication and iterative aspect in Yao and Chêwa

#### 3.5.1 Iterative VPs in Yao, Chêwa and English

Before we close the discussion of Vendler's verbal classifications, we might do well to indicate one area which these categories fail to emphasise. Only when Vendler talks about the existence of the "spotting" sense of the stative VP like "seeing", are we reminded about this important though by and large forgotten area. The literature on aspect is not unanimous as to whether "iteration" is aspectual or merely expresses different forms of quantification. In certain cases however, a compromise is struck when iteration is treated within "aspect and quantification" (Cf. Carlson, 1981). But look at the following VPs:

30. Y: -tétémèlà	C: -njénjémèlà	E: tremble
-téndá njómbà	-pángà njòmbà	dribble (ball game)
-ndúndùmìlà	-chítá màsálé	twitch
-súlúlā	-khá/-dónthà	drip/leak
-kúpìlà	-kúpìlà	blink

From a quick look at this short list of VPs, we can tell that what groups them together is the "number" or the "iteration" or the "frequency" of the times of the event which they denote. VPs like "twitch" and "blink" denote at least one movement in time (and space of course); whereas VPs like "dribble" and "tremble" denote more than one movement in time. Clearly the interpretation of utterances where such VPs appear, will naturally be somewhat influenced by this intrinsic character. For example, such VPs will tend to co-occur with frequency adverbials as can be seen from 31:

31. Y: Lùkópè lyàngù lù-ndùndúmìlè kàmò/kāwílì  
 C: Chìkópè chángá chàpàngà māsálé kàmódzì/kāwírí  
 E: My eye-lid twitched (has twitched) once/twice

Similarly, VPs like "tremble" will tend to co-occur with frequency adverbials which denote more than one time or one movement. In other words, these VPs or the propositions which they partially express entail some form of potential iteration of the events they describe or denote. The interpretation of utterances with such VPs therefore involves some knowledge (conscious or unconscious) of this inherent iterative behaviour.<sup>4</sup>

### 3.5.2 Verbal reduplication in Yao and Chewa

Yao and Chewa also have a system of encoding iteration by the reduplication of their verb roots. The following is a short list of VPs representative of each of the VP categories we have so far discussed (the fifth is an inchoative VP which constitutes a sub-class of accomplishment VPs).

32. Y: -útúkà-ùtúkà	C: -thámāngá-thámāngá	E: run many times
-pílíkàná-pílíkàná	-mvá-ìmvà	hear "
-útúkà-ùtúkà mjàhò	-thámāngá-thámāngá mjàhò	run a race "
-págwá-pàgwà	-bādwá-bādwà	be born "
-kómálà-kòmàlà	-psyá-ìpsyà	ripen/ mature "

As can be seen from 32, VPs from all the four categories can be reduplicated. What is important however, is the provision of the appropriate interpretation when these VPs are reduplicated. In fact, this might be the stage to clear an important issue which we have only implicitly indicated this far. This is the issue that concerns the interpretation of unacceptable though grammatical sentences and apparently ungrammatical though obviously acceptable utterances. This issue has been recently discussed by Smith N.V. (1981) who concludes that with regard to the interpretation of tense "some constructions previously deemed ungrammatical

were in fact grammatical even though frequently unacceptable, and that other constructions previously deemed ungrammatical even though acceptable should be reanalysed as grammatical" (p.264). We have already indicated how accurate this observation is with regard to the interpretation of utterances for aspect when we discussed especially event and state VPs (Cf. 3.3 and 3.4).

We assume here therefore, that potentially the interpretation of a typical reduplicated VP or its utterance cannot be too different from that of its non-reduplicated counterpart. As has been noted by Moravcsik (1978) discussing "reduplicative constructions" in a different context, that is, not with "aspect and quantification" in mind, the relationship between the reduplicated VP and that of its non-reduplicated one is that of proper inclusion. This means that reduplicated VPs entail everything that their non-reduplicated VPs entail (and a bit more besides) but not vice versa. Generally however, the appropriate interpretation of utterances with reduplicated VPs depends on both their syntactic structure, their semantic content and especially pragmatic factors (contexts etc.).

On these terms, it is clear that reduplicated activity VPs and the utterances of which they are a part potentially iterate the activity.



33. Y: ChéWájàbù à-kú-útúkà-ùtúkà lélò

C: Wájàbù à-kù-thámángá-thámángá lèrò

E: Wajabu is running (repeatedly/here and there) today

The first neutral interpretation of 33 is that the activity of running performed by Wajabu is iterated. But 33 also implies that there is something strange about Wajabu's repeated running. Often it means that he does not usually run so many times in a day or there is something uncomplimentary about uttering 33. Note also that this interpretation is not too dependent on the adverbial (i.e. "today"). If we did not have this adverbial for instance, the sentence would still be taken to vaguely refer to present time like "today". But if we had a frequency adverbial like "these days" which denotes more than one time, 33 would be interpreted habitually; and the strangeness of Wajabu's activity would therefore disappear.

Reduplicated accomplishment VPs expressed in sentences like 34

34. Y: ChéWájàbù à-kú-útúkà-ùtúkà njàhò àgàhò mówá gǎnó

C: Wájàbù à-kù-thámángá-thámángá njàhò màsíku ànò

E: Wajabu is repeatedly running the race these days

are taken to mean first that Wajabu runs the race almost as a habit which has only just started. This interpretation is

possible particularly because of the frequency adverbial and again the singularity of the subject NP and the NP "race". If we had an adverbial like "today" the appropriate interpretation of the sentence would require some indication of the context as certain races tend to be run only once per day/season. The plurality of the subject NP would cause the individuals participating in the race to multiply accordingly. Note however, that in both these cases (33 and 34) the exact number of times that the activities or the events are iterated is vague.

The interpretation of 34 does not apply to all cases of accomplishment VPs however. Inchoatives like "mature" or "ripen" induce different interpretation as can be seen from 35:

35. Y: Pī twá-íché, twà-síméné yémbé sílì sī-kòméle-  
kòmèlè

C: Pàméné tí-nà-fíká, tǐ-ná-pèzà mángó á-tá-psyá-  
ipsyá

E: When we arrived, we found that the mangoes had  
ripened

It is the ripening of each of the mangoes which is meant in 35, rather than the repetition of the ripening for each of the mangoes. This is so because the ripening of mangoes is an event which takes place only once for each mango. This explains also why the reduplicated inchoative VP will generally not co-occur with a singular object NP. The only

exception when an inchoative VP might be acceptable with a singular NP like "mango" is in fiction or folk stories where one mango might be said to "ripen" or "grow" many times i.e. again the appropriate interpretation here is provided by the context.

Similarly, achievement VPs which behave like accomplishments i.e. those which are assumed to potentially entail an end-point like "be born" are interpreted understandably as the accomplishment VP in 35. For the same reason (that one's birth happens once only, except in fairy stories etc.) 36 is generally unacceptable but grammatical.

36. Y: ? Mwānáchè'jù à-kú-págwá-pàgwà àgàndè mōwá gánó

C: ? Mwāná'yù à-kù-bádwa-bàdwà māsíkú àndè

E: ? The child is repeatedly being born these days

The only other possibly acceptable interpretation of 36 that we can think of is when the "child" is taken representatively to stand for a set or a type of "children" (as in the case of a set of thalidomide children being born obviously separately, within a certain stretch of time). Otherwise 36 is acceptable only after the NP in the subject position is plural when it is interpreted as in 35.

As for the other kind of achievement VP, e.g. "flash", "explode", "snap" which denote point-time as we indicated

earlier, there is no problem of the interpretation of their reduplicated form. The potentially dimensionless event denoted by these VPs or the propositions which they might partly express, is construed as being iterated definitely or indefinitely as the case may be or according to the context. This won't need illustrating.

What might need some mention is the construal of sentences with a reduplicated state VP. As we indicated in 3.3, progressive states are interpreted iteratively or as signalling gradually developing iterated states.

37. Y: Ngú-pílikànà-pílikànà màségwè kùsá'kú ágàndò  
mōwá gánó

C: Ndī-kù-mvá-ìmvà phòkósó kùnjá'kù mäsíkú ànd

E: I am hearing noises outside these days

The hearing in 37 is interpreted iteratively not only because of the influence of the plural NP (noises) or the presence of the frequency adverbial (these days) but mostly because the reduplicated VP is stative.

Even VPs which intrinsically denote iteration, as we briefly sketched, can also be reduplicated. This is exemplified by 38:

38. Y: Lùlò lí-kú-súlúlà-sùlùlà àgàno mówá gánó

C: Mtsùkò ù-kù-khá-ìkhà màsíku àndò

E: The jar is repeatedly leaking these days

The least confusing way of indicating the interpretation of 38 whose VP already encodes iteration might be by representing the sentence graphically thus:

39. ---  $\rightarrow$  ---  $\rightarrow$  ---  $\rightarrow$  ---  $\rightarrow$   
 $t_0$   $t_1$   $t_2$   $t_3$

This is in opposition to the meaning of sentence 40.

40. Y: Lùlō lì-kū-súlúlā àgàndò mōwá gānō

C: Mtsùkò ù-kū-khá màsíkù ànd

E: The jar is leaking (leaks) these days

whose non-reduplicated VP encodes iteration which might be graphically represented as 41:

41. ---  $\rightarrow$

Each dash in 39 and 41 is a simplified representation of one drop; but whereas the four dashes are arbitrarily meant to stand for the number of times the drops fall i.e. indefinitely in 41, each set of four drops is repeated four times i.e.  $t_0$ - $t_3$  and indefinitely in 39. Clearly the differences between the interpretation of the iteration in 38 and that of 40 is difficult to arrive at because of the unspecified number of times which the VPs (reduplicated or not) denote. In both cases the leaking can be differently interpreted for example, as being either continuous, where no gaps between the drops

(dashes) say, are discernible (unlike in 39 and 41) or as being iterative with short or long intervals between the drops (dashes) or set of drops, as is represented by 39 and 41. Other differences in interpretation will tend to be resolved by either linguistic or non-linguistic contexts.

The following concluding remarks might not be out of order therefore regarding the interpretation of iterative utterances. Iterated VPs appearing in utterances might express not only the repeated occurrence of the events, states or activities which they describe, they might also express their persisting occurrence which need not be iteratively interpreted. Often where a non-reduplicated VP might express a neutrally described notion, its reduplicated form might denote the opposite notion (e.g. it might be pejorative, Cf. 33, Wajabu's "repeated running" above). Also, reduplicated VPs or the sentences in which they might appear, are always unspecific as to the exact number of times that the event, state, activity is iterated. This general vagueness is often linguistically resolved by NPs or adverbials with which the VPs might occur. Otherwise it is pragmatically resolved along the lines indicated in the final chapter.

Finally, according to the tradition adopted in this

chapter this far, we might represent an iterative (reduplicated or not) VP (ITER) as denoting the number  $n$ , of times  $t$ , which may be specific [SPEC] as in the case of a VP like "blink" or unspecific [UNSPE] for all other cases, as in 42:

$$42. \quad \begin{array}{c} \text{VP} \\ (\text{ITER}) \end{array} \longrightarrow t_n \left\{ \begin{array}{c} [\text{SPEC}] \\ [\text{UNSPE}] \end{array} \right\}$$

42 claims that an iterative VP denotes either a specific or an unspecific number of times in which the event described takes place.

### 3.6 The time schemata encoded in temporal adverbials

So far we have only indicated that VPs in the four categories can co-occur or fail to occur with specific temporal adverbials. It is clear however, that the temporal concepts inherent in VPs which we have just indicated are also encoded in these adverbials. The relation between aspect and temporal adverbials has been noted in the literature before (Cf. Nilsen, 1972, and others). Not only do VPs and ADVs often denote similar concepts of time but in fact, this is the reason why a language which might not express certain concepts morpho-phonologically may do so through their VPs and/or adverbials (Cf. the point which Dubs made about the expression of time in

Chinese; see particularly also the study of aspect in Chinese by Melchert, 1980). Without wanting to dwell too long on this point, we give below some temporal adverbials which appear to be relevant for the description of aspect.

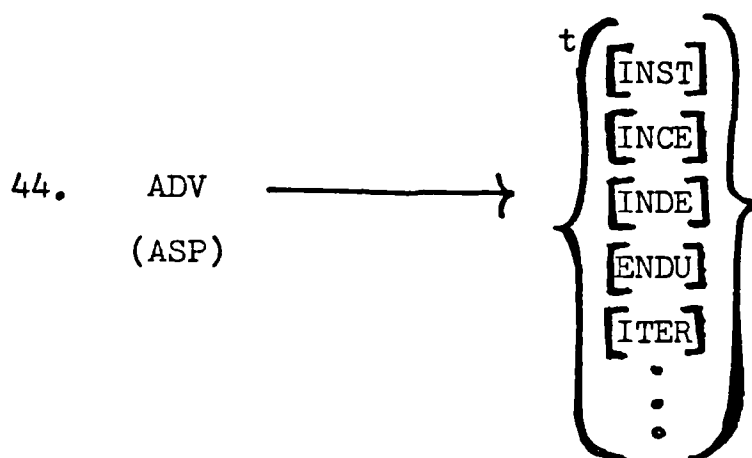
43. Y: pà ténì kòlòkò	C: pà ténì kòlòkò	E: at ten o'clock
kùndǎwì	m'máwá	in the morning
màólà gâwílì	màólā àwílì	(for) two hours
mówá gòsòpé	màsíkù ónsè	everyday
ndáwì jòsòpè	ntháwì zónsé	always
lìsò	dzùlò	yesterday
pì-wàjáulà-gá	paméné á-má-pítà	while he was going
à-nkáná-jáulè	á-sàná-pítè	before he went
pì-wà-pítè	á-tá-pítá	after he went
kàmò-kàmò	kàmódzì-kàmódzì	once in a while

It is clear from 43 that ADVs have temporal features which characterize VPs. For example, "at ten o'clock" is instantaneous. "in the morning" is durative or expresses an interval of time which has boundaries or closure; as does the deictic "yesterday". The time encoded in "always" is characteristically "indefinite", "enduring" or "continuous" - it might even have gaps. "while" emphasizes the medial process of an activity, event or state. "before" and "after"



emphasize the initial and final points of a given activity, event or state. And finally, "everyday" and "once in a while" denote the frequency or iteration of the events, activities or states that they describe.

The point we would like to stress is that certain temporal ADVs encode aspectual concepts that would be morphologically marked in Slavic. And representing these concepts within the tradition we develop here as 44 is therefore not being too far-fetched about how we interpret aspect.



44 claims that certain adverbials can be interpreted as inherently signalling such concepts as instantaneity, inception, indefiniteness, enduring time, iteration etc.

### 3.7 Aspectual marking in Yao and Chewa

We have sufficiently argued and demonstrated this far

that VPs, ADVs and implicitly NPs (i.e. by their singularity and plurality) encode temporal concepts which Slavonic linguists have always associated with "verbal aspect": concepts such as inception, completion, resumption, habituality, continuity, iteration etc. There are also morphological items in Yao and Chewa which might be accurately referred to as marking some of these concepts. This section is devoted to a brief discussion of some of these.

### 3.7.1 The iterative suffix in Yao : -nya

We concluded section 3.5 with a discussion of iteration denoted by verbal reduplication among other forms. We start this section with what might be called the "iterative marker" which is peculiar to Yao alone. No equivalent marker appears in Chewa to our knowledge. And this marker (-nya) applies only to a small group of achievement VPs which, we suspect, might not be more than a score in number altogether. The following is a random sample:

45.	-témángùlà	(break)	-témángùlà-nya
	-pwátíkà	(patch)	-pwátíkà-nya
	-útá	(pull)	-útá-nya
	-kátá	(cut)	-kátá-nya
	-píndá	(bend/ fold)	-píndà-nya
	-mátá	(glue/ patch)	-mátá-nya

-póndá	(stamp foot on)	-póndà-nyà
-jǒngòlà	(stretch)	-jǒngòlà-nyà
-lókótà	(pick up)	-lókótà-nyà
-póólà	(piece/bore)	-póólà-nyà
-pápúlà	(tear)	-pápúlà-nyà

Obviously one way of signalling iteration for the VPs in 45 is reduplication as we have seen in 3.5. On these terms -témángùlà-tèmàngùlà means "break many times or into many pieces". But it is not necessary to reduplicate this set of VPs. "-nya" sufficiently performs this function as is indicated by the second section of the VPs in 45. -témángùlà-nyà has the same meaning as -témángùlà-tèmàngùlà. And this goes for all the other VPs in 45. And to indicate that the item in question is broken into even smaller and smaller pieces or many more times, the new VP marked by -nya might also be reduplicated thus: témángùlà-nyà-tèmàngùlà-nyà which often means "to break beyond recognition of the original shape of the item". And this also goes for all the other VPs in 45.

However, as we have consistently indicated, when the iterative marker is suffixed to the verb root as in 45, what is important is the meaning that this suffixation signals. This is particularly true for VPs like "útá-nyà", "jǒngòlà-nyà", "píndà-nyà" and others. The VP "útá-nyà"

predicated over an item like "iron" as in:

46. Y: Chĩsyānó chĩlā à-gāmbílé kù-chĩ-útá-nyà

C: Chĩtsúlò chĩjà à-ngò-chĩ-kókà-kóká

E: The iron has just been pulled apart

does not directly emphasize the number of times the iron has been pulled apart or out. The meaning of 46 Y (and 46 C) is that the iron has been straightened to the point that its original shape (which was somehow crooked or round etc) is unknown. Similarly, kátá-nyà or its reduplicated form kátá-nyà-kàtà-nyà only remotely resembles its original VP -kata (cut) in meaning; for these new VPs mean "mince" or sometimes "grind". In these cases, the number of times encoded in the VPs is only obliquely referred to. And 47:

47. Y: Chéwájàbù à-gāmbílé kù-lì-píndà-nyà

C: Wájàbù wà-ngò-dzí-píndà-píndá

E: Wajabu has folded himself several times

is a pejorative way of describing Wajabu's way of sleeping: he folds himself, more than double, as it were. All these interpretations fit in with what we have said about reduplicated VPs: the iterated item may not signal the same meaning exactly signalled by the non-iterated VP (whether iteration is intrinsic, by reduplication or by

suffixation); and the number of times is unspecific and might be indefinite.

### 3.7.2 The progressive marker in Yao and Cheŵa : -ku-

In both Yao and Cheŵa continuity or progressivity is morphologically marked by the same element -ku-. Traditional descriptions consider -ku- either as an infinitive marker or the marker of present continuous tense. It might be more accurate however, to consider -ku- as marking imperfectivity which subsumes the continuous or progressive aspect. Those grammarians who take this affix as a marker of "tense" rather than aspect, cannot however, be so easily dismissed. As we indicate in the next chapter tense has to be understood as the way in which temporal schemata which characterize aspect (e.g. continuity, completion, inception, resumption etc.) are related to each other sequentially or are anchored to speech time (or both). Naturally, if the continuous marker -ku- in both languages is anchored to speech time, by being simultaneous to it that is, the continuousness thus signalled will tend to be associated with the speech time or present time. Strictly speaking then, -ku- signals imperfective aspect (continuity) or a process that goes on in time, which need not be taken as simultaneous with the speech time of an utterance.

As we indicated, the activity VP poses no problem with

its co-occurrence with this progressive marked (Cf. 3.2.1 above). In all cases where -ku- appears, the progress or the process of the activity, event or state is emphasized, either continuously for activities or iteratively for pure achievements and states and either continuously or iteratively for inchoatives. These facts have already been illustrated. We might just repeat that -ku- goes with statives as well as other VPs; and what we suggested about the interpretation of sentence 14 and 15 above applies. So entailment rule 25 applies to event VPs or fails to apply as the case may be. <sup>5</sup>

3.7.3 The habitual marker in Yao and Cheŵa: -ku- + sa ; -ma

Habituality is morphologically marked in Yao and Cheŵa. In Cheŵa -ma- sufficiently marks it when it occupies the position often occupied by the progressive marker -ku- i.e. after the subject prefix (ti-) and before the verb root (-thamanga) as in 48 C (though sometimes -ma- can co-occur with -ku-).

48. Y: tù-kú-sà-ùtúkà

C: tí-mà-thámǎngǎ

E: we (always) run

As we can deduce from 48 Y however, Yao expresses habituality not only by the traditionally assumed habitual marker -sa- (Cf. Sanderson, 1922; Whitely, 1966), but almost always in

modern idiomatic Yao, in the context of the progressive marker -ku-. And this is true of VPs from all the four verbal categories, as we might expect. The usual apparently bothersome categories are those we have already seen. VPs like "be born" which denote an event which happens only once are interpreted differently, i.e. as in contexts of "fairy stories" where a singular subject NP is concerned. Inchoative and stative VPs might appear to present a problem in the interpretation of their habituality as well.

49. Y: Yémbé sí-kú-sà-kòmálá

C: Mángó á-mǎ-psyá

E: Mangoes (always) ripen

50. Y: tù-kú-sà-pìlìkáná

C: tí-mǎ-mvá

E: we (always) hear

49 and 50 are partly vague (Cf. Smith, C.S., 1977) without adverbials and noun phrases that might bring in specificity. 50 means that we hear habitually; and 49 that mangoes ripen as a habit (which is obvious). Alternatively, these sentences express the "ability to V"; that is, they also express the natural characteristics of mangoes or "our" characteristic as human beings to "hear". We pick up this point below.

### 3.7.4 The stative marker in Yao: -ku- + V +ga

Yao also has what is traditionally referred to as an iterative marker -ga, which we suggest, be considered instead as a "stative marker". And like -sa- it always goes with -ku- or in certain cases with -sa- itself or with both -ku and -sa-.

51. Y: ChéWájàbù wá-kú-lyá-gà màjàní

C: Wájàbù á-mǎ-dyá ànyǎní

E: Wajabu eats monkeys

We assume from the interpretation of 51 that it is not only a habit of Wajabu's to eat monkeys, but he is as it were, characterized by this fact. This is also true of 52:

52. Y: ChéWájàbù à-kú-sà-lyà-gǎ màjàní

C: Wájàbù á-mǎ-dyá ànyǎní

E: Wajabu eats monkeys

With accomplishment and achievement VPs (i.e. event VPs), what is also emphasized is the "ability to V" which is denoted when "ku + V -ga" appear. On closer examination of the VP categories however, we suggest that what is central to all the interpretations this far is that these two markers in combination have the major function of signalling stativity. The habitual characteristic which



is denoted by the two markers is such that it generally "endures" for the rest of the relevant time-span involved. This is why it might be more accurate to call "ku- + V - ga" in Yao a stative marker.

### 3.7.5 The continuative marker in Yao and Chewa: -pe, -be

Finally, we indicate two suffixes which signal continuity of the event or state or activity in the same way that the temporal adverbial "still" does in English.

53. Y: Chéwájàbù à-nà-nkù-lyà-pé

C: Wájàbù à-kù-dyá-bè

E: Wajabu is still eating

It is clear from the interpretation of 53 that the action started sometime back and is continuing. This interpretation is possible because of both the progressive marker, which directs the process to the speech time of the event and the continuative morphological marker "-pe" and "-be" (note that the "-na-" in the Yao sentence behaves like the verb "to be" in English). Again this interpretation is true generally of all the VP categories; i.e. the activity, state, event etc. is normally assumed to have started earlier than the speech time and is expected to continue beyond it.

In conclusion, let us say this: that we intended to

indicate the nature of aspectual marking in Yao and Chewa in these five sections. Obviously, this sketchy picture could be amplified by a brief examination of what goes on when VPs or morphological markers appear with items from other categories such as noun phrases and adverbials. In the next section, we should like to briefly and rather informally indicate how aspect might be interpreted in these linguistic contexts, clearing the ground for its treatment in extra linguistic contexts as we propose to do in the final chapter.

### 3.8 The sentential interpretation of aspect in Yao and Chewa

We devote a few paragraphs below to indicating how a fuller picture of what constitutes aspect might be obtained when we treat VPs, ADVs, and markers in the context of each other. This chapter in fact, has already indicated in passing how a change of the linguistic context in which a VP appears (i.e. how the addition of an adverbial in an utterance) might induce interpretation of the utterance which is different from that denoted originally by the VP. Here we take only a few cases to underline the fact that even before we seek model-theoretic treatments of some of the problems of the vagueness of interpretation of some utterances, other linguistic solutions can reduce the number of problems in question.

54. Y: Lítáyàlà lílà lì-kú-úlíkà

C: Tálàyà lījà lì-kù-phūlíká

E: The tyre is exploding

We noted earlier that the proposition expressed by an achievement utterance as in 54 does not suggest the truth of its "perfect" counterpart i.e. "the tyre has exploded". At least initially, the "perfect" utterance is not deducible from 54. In other words, whereas with progressive activity VPs or the proposition they partly express, the "perfect" entailment was logically necessary, this is not the case with event VPs. This does not mean that they are necessarily incompatible or unacceptable however, given an appropriate context. In 55 for example,

55. Y: Mátáyàlà gà-là gà-kú-úlíkà

C: Mátáyàlà à-jà à-kù-phūlíká

E: The tyres are exploding

the proposition expressed by the utterance in its "perfect" form as in 56 is compatible or acceptable.

56. Y: Mátáyàlà gà-ùlíchè

C: Mátáyàlà à-phūlíká

E: Tyres have exploded

The plurality of the NP in 56 in part obviously enhances this compatibility or acceptability. That is, although the plurality of the NP in 55 does not make the "perfect" counterpart in 56 "logically necessary", it certainly makes it more compatible or acceptable. Again the distinction between grammaticality and acceptability (or its resolution in context) comes into play here. Turn now to a sentence like 57:

57. Y: Lítáyàlà lìlà lì-kú-úlíkà-ùlíkà àgàndò mówá gánó

C: Táyàlà lìjà lì-kù-phúlíká-phúlíká màsíku àndò

E: The tyre is frequently exploding these days

57 is acceptable not only because of the reduplicated VP but also because of the frequency adverbial with which it occurs. In this case however, the number of times that the tyre explodes is vague. In some cases (even before we appeal to pragmatic factors of extra linguistic context) other adverbials could resolve this vagueness.

58. Y: Lítáyàlà lìlà lì-kú-úlíkà-ùlíkà kámò pá lyúwá  
àgàndò mówá gánó

C: Táyàlà lìjà lì-kù-phúlíká-phúlíká kámódzi pá  
tsíkù màsíku àndò

E: The tyre is (?frequently) exploding once a  
day these days

The habituality which might have been denoted in 57 is partly curtailed by the more specific adverbial "once a day",

signalling larger gaps between the iterated explosions of the tyre.

The use of this achievement VP with another achievement VP might reveal other facts about how these categories or markers influence each other in linguistic contexts. Take 59 for example.

59. Y: Lítáyàlà lílà lí-tàndílè kù-ùlíkà

C: Tálàyàlà líjà là-yàmbà kù-phúlíká

E: The tyre has started to explode/exploding

In the interpretation of 59, the problem of the non-applicability of the entailment rule 25 raises its head again. But as is frequently noted in the literature (Cf. Mittwoch, 1980) 59 is meaningful in contexts like when we are watching a slow motion film concerning the explosion of a tyre and we are noting the exact moment when the tyre might be said to have started exploding. Otherwise, only the plurality of the NP "tyre" might save 59. This argument applies also for the use of these VPs with other "aspectual VPs" (Cf. Freed, 1979) like "resume", "end" etc.

Similarly, the inherent temporal structure for morphological markers of aspect is influenced by the semantic content of the NPs, ADVs and other items with which they might appear in utterances. We will not give

too many examples as the point is sufficiently made now.

60. Y: Lítáyàlà'lò lí-kú-sà-ùlíká-gà àjínó ndáwí jínò  
mōwá gósòpè

C: Tá'yàlà'lò lí-mà-phùlíká ntháwí ìnó'yò mäsíkù  
ónsé

E: The tyre explodes at about this time everyday

60 expresses an event which is not only repeated sufficiently enough to become habitual but the morphological markers combine with the temporal adverbial and the singular NP to signal the expected (almost scheduled) explosion of the tyre.

.For the same reason, a sentence like 61 is more specifically interpreted because of the presence of the adverbial "once a day".

61. Y: Tù-kú-sà-pìlíká ná mäségwè kàmò pá lyúwá àgàndò  
mōwá gánó

C: Tí-mă-mva phòkósó kàmódzì pá tsíkù mäsíkù àndò

E: We hear the noise once a day these days

The "hearing" which might have been interpreted as "continuous" habituality in the context of the habitual marker and the frequency adverbial "these days", now adjusts its interpretation to that of "iterative" habituality.

In conclusion, we only intended to give the feel of the linguistic contexts which influence the interpretation

of aspectual markers, VPs and NPs. We did not aim at being exhaustive in our treatment. We hope to have sufficiently shown that a fuller picture on the interpretation of aspect emerges after we have treated this category sententially or "quasi-lexically" or in its linguistic contexts. At this level, we are forced to consider the total temporal structure encoded by the combination of the various morphological and lexical items which constitute the utterance. It is this fact which constitutes a part of the meaning of the "compositionality principle" assumed to be central to model-theoretic treatments of aspect and tense to which we turn briefly later.

### 3.9 Conclusion

Any cross-linguistic interpretation or description of a category like aspect involves the identification of features which are as it were, "universal" to the languages concerned and those which are "particular". This chapter noted such particular features as the existence of the iterative marker in Yao and its absence in Cheŵa and English. The presence in Yao and Cheŵa of habitual markers and its absence in English. The limitless use of the progressive marker in Yao and Cheŵa and its use with non-stative VPs generally in English. The particular

features however, tend to be almost invariably morphological or lexical (i.e. generally not concerned with differences of the concepts which they denote). We hope to have sufficiently demonstrated therefore, that the cross-linguistic interpretation of aspect involves the knowledge or identification of intrinsic temporal schemata which are inherent in morphological markers, VPs, ADVs, NPs and the constructions or utterances in which they figure. We hope to have sufficiently indicated that where VPs and markers in isolation induce temporal vagueness (or ambiguity) of reference of the utterances in question, linguistic contexts (i.e. the provision of an appropriate adverbial or an NP) might resolve the problem.

There are utterances like 62 however, which, to all intents and purposes, still remain indeterminate in what they refer to.

62. Y: Chéwájàbù à-wilé-jè lîsó lígùlò

C: Wájàbù à-má-fá dzùlò màdzúló

E: Wajabu was dying yesterday evening

It is not clear from 62 whether Wajabu's death was planned to take place yesterday; or that 62 describes a death that took place yesterday; or that they (whoever they might be) were only remembering or celebrating his death which took



place on a day like yesterday; or that Wajabu was about to die yesterday but the doctors saved him etc. Each of these is a "potential" linguistic context (i.e. adverbials and other lexical items might be found to determine the interpretation) which could be used to indicate the appropriate interpretation of 62; but often the choice of the appropriate interpretation is dependent on extra-linguistic (pragmatic) factors. It is with an exploration of these that the rest of this study will occupy itself. Let us first however, turn to a discussion of tense in Yao, Chewa and English.

FOOTNOTES TO CHAPTER THREE

1. The view we hold on the matter as is apparent later in this chapter is that the progressive operator (marker) in Yao and Cheŵa (i.e. -ku- for both languages) marks continuous/progressive aspect (or imperfectivity generally). -ku- is traditionally considered to mark tense only because the process it signals tends to be anchored to the speech time (Cf. Reichenbach, 1947, and followers) of the utterance in question.

2. In these cases, we suppose for the sake of argument, that Wajabu collapses after one hour or one second of being declared ruler, assuming that one begins to rule at the stroke of the time one is so declared.

3. It is clear that Kenny, Mourelatos and others are correct when they group particularly those accomplishment and achievement VPs which denote the end-point of the events they describe as "performances" or "events", reducing the VP categories to only three. But we do not reject Vendler's four categories because achievement VPs like "flash", "explode", "snap", "burst" etc. cannot be accurately referred to as denoting an end-point to the same extent that "draw a circle" or "reach the hill-top" do. We consider the former VPs (e.g. "flash" etc.) as "pure" achievements, thereby justifying Vendler's four categories of VPs.

4. Clearly VPs like "twitch" and "dribble" are semantically different especially in the context of frequency adverbials.

"twitch" + frequency ADV = either several twitches or one

"bout of twitching";

"dribble" + frequency ADV = "two bouts of dribbling".

5. The progressive or continuous aspect can also be expressed by a combination of what might be referred to as the "verb to be" equivalent in Yao and Chewa (happily -li for both languages) with the imperfective marker -ku- as in:

(a) Y: tù-lì mkù-wálangà chítábù

C: tì-lì kù-wéréngà búkù

E: we are reading a book

Although we assume below that the sentences take the form of

(b) subject prefix + tense/ aspect pref + verb root

tu	+	ku	+ walanga
----	---	----	-----------

ti	+	ku	+ werenga
----	---	----	-----------

we		asp/prog	+ read
----	--	----------	--------

there are other forms like those in (a) above which exist.

## CHAPTER FOUR

### TENSE MARKERS, DEICTIC ADVERBIALS AND TIME INTERPRETATION IN YAO, CHEWA AND ENGLISH UTTERANCES

#### 4.0 Introduction

We start this chapter on the assumption demonstrated in the last chapter, that to understand tense more fully cross-linguistically, we must treat this category above all sententially. That is, although tense is largely grammaticalised in Yao and Chewa to an extent which aspect is not, it is understood better when we examine how the temporal notions of past, present and future denoted by tense markers are modified in contexts of deictic adverbials and in whole utterances.<sup>1</sup>

That utterances with tense markers but outside the context of deictic adverbials with which they naturally co-occur, are generally vague has been amply illustrated by Smith C.S. (1977, 1978, 1981) and others. And the recent work on tense (Cf. Hornstein, 1977; Smith C.S., *ibid.*; Comrie, 1981b; Wachtel, 1982 and many others) based on Reichenbach (1947) indicates that the appropriate interpretation of tense in utterances involves more than knowledge of the morphological, lexical or sentential markers of past, present and future time. We look briefly at the Reichenbachian treatment of tense and indicate that this model is clearly superior to the traditional

treatments of tense. Reichenbach proposes a semantic treatment of tense based on three temporal primitives: the moment of speech (S), the moment of the event (E), and the presence of some other reference time (R) which, however, is not necessary in certain constructions (Cf. McGilvray, 1974 and Comrie, 1981b). The appropriate interpretation of tense given these three temporal primitives, revolves around the structuring of the primitives E and R according to whether or not they are anterior to, posterior to, or simultaneous with the speech time S.

On the basis of Reichenbach's system, we attempt a unified treatment of tense and aspect, (though one which is in part different from that of for example, Johnson, 1977, 1981 etc.). We take tense to be orthogonal to aspect and provide a list of sentences indicating the ordering of the three temporal primitives (S, E and/or R) with the aim of indicating how the Reichenbachian interpretation of tense works. Given the temporal structure indicated in the previous chapter for the interpretation of aspect, the treatment of aspect and tense at right-angles to each other as we indicate here, should not come as a surprise. It is in fact, implicit in Reichenbach's own treatment of progressive and iterative forms of events.

But, as might be expected, no theoretical framework is foolproof. Limitations of the Reichenbaccian treatment exist as has been pointed out by linguists such as McGilvray (1974), Comrie (1981b), Wachtel (1982) and others. The limitations concern on the one hand the interpretation of sentences which have different morpho-syntactic structure, but are claimed to have one meaning; and on the other, the case where one (utterance of a) sentence is claimed to have more than one meaning. We note that these limitations do not necessarily vitiate the semantic treatment proposed by Reichenbach and his followers, but that the pragmatic interpretation which is in part a function of the ordering of the three temporal primitives might need expanding, along the lines proposed in the final chapter. We start this chapter however, by illustrating with a few typical examples how tense is morphologically and lexically marked in Yao and Chewa.

#### 4.1 The morphological and lexical marking of tense

Both traditional and more recent descriptions of tense in Yao (Sanderson, 1922; Whiteley, 1966) and Chewa (Watkins, 1937; Price, 1962) as well as English (Cf. Quirk et al., 1972) and others are largely concerned with the discovery of the morphological markers (affixes) which denote past, present, and future time. Clearly,

the knowledge of these markers constitutes the starting point for the interpretation of tense in utterances. In some cases the appropriate construal of tense is provided when we treat these markers in the context of deictic adverbials; in yet others, when we treat them extra-linguistically. The following sections demonstrate these claims informally.

#### 4.1.1 The interpretation of present time markers

Let us start by a brief discussion of what is traditionally referred to as the "present continuous tense". In the last chapter, we indicated that the affix -ku- can be used to refer to either "tense" or "aspect". We claimed that it does not matter whether we take this marker and its English equivalent as expressed by the various forms of the verb "to be + V -ing" as tense or aspect, as long as we are aware of the different interpretations attached to each usage. When we utter 1

1. Y: tò - kú - útúkà

C: tì - kù - thámángá

E: we are running

for example, if our emphasis is on the progressivity of the activity of running, we are talking about aspect; but if we relate this progressivity to the speech time

of the utterance (Cf. Reichenbach, 1947, below), we are talking about tense. The correct interpretation of the morphology is here neutral as between the two, and the literature (Cf. Quirk et al., 1972) confirms this.

Supposing we say that -ku- and its English equivalent forms signal present time, which happens to be interpreted as being simultaneous with the speech time of the utterance. We still have to grapple with the appropriate interpretation of this simultaneity.<sup>2</sup> For instance, an utterance such as 1 with an activity VP and the progressive marker -ku- will tend to signal a speech time which is properly included within the temporal stretch of the process. For utterances with event VPs as in 2 below,

2. Y: tù-kú-íká pénání pálà

C: tì-kù-fíkà pàmwámbá pàjà

E: we are reaching the hill top

the speech time of the utterance is included within the temporal stretch of the event denoted by the VP "reaching the hill top", although there is no guarantee that this end-point will necessarily be reached. Technically the end-point of the event and the moment when the utterance stops are supposed to overlap completely for the simultaneity to be clearly understood.



What we called "pure" achievements as in 3 are interpreted differently however.

3. Y: Lítáyàlà lílà lì-kú-úlíkà

C: Táyàlà lìjà lì-kù-phúlíká

E: The tyre is exploding

It is generally assumed that the tyre will explode immediately after the speech time of the utterance, although its explosion before the end-point of the speech time of the utterance is not necessarily excluded, i.e. in 3 the tyre can explode immediately before or after the utterance has been made or at the exact time when the utterance stops.

Similarly, the interpretation of stative VPs with -ku- as in 4 below, has a special character about it which pertains to the "enduring" nature of such constituents.

4. Y: Lìgómò'lì lì-kú-nónyélà kwá nnòpè

C: Nthóchí'yì ndì-kù-íkóndá kwámbírì

E: I am loving this banana a lot

Here, speech time is not only properly included in the temporal stretch denoted by the process of banana loving (as with the interpretation of activity utterances) but we expect the temporal stretch of the "loving" to go beyond the speech time. Above all, 4 is interpreted as

we interpreted those inchoative progressives which have no gaps (Cf. the claim in chapter three). We have sufficiently shown then, that the "aspectual" marker -ku- can be used as a "tense" marker. We have also indicated that the interpretation of the simultaneity of the speech time with the event time (in our terms, events will be taken to subsume activities and states as well) depends on the VP category.

Another way of indicating how we interpret these markers can best be seen when we treat utterances as in 1 - 4 in the context of deictic adverbials, Cf. (5):

5. Y: tù-kú-útúkà sàmbánò jínó

C: tì-kù-thámángá tsópànó línó

E: we are running right now

As we noted in the previous chapter, the temporal structure denoted by VPs or indicated by morphological markers, could also be denoted by ADVs and other categories. This is one way of getting clearly the interpretation we offered in 1 - 4 above i.e. by locating the utterance time within the time of a deictic temporal adverbial such as "now" etc... As we know, there are other temporal adverbials which refer to the present time. The following is a short representative list:

6.Y:sàmbánò jíńó	C: tsópàní línó	E:right now
àjínó ndáwì	ntháwì ìnò	this time
pángúwéchètá'pá	ndíkúlánkhúlà'pà	as I speak
pàngákàwá'pà	pósàchédwà'pà	(just) recently
mówá gósòpé	màsíkù ónsé	everyday
àgàndò mówá gánó	màsíkù àndò	these days

Given the interpretation we have provided for the use of -ku- and its English equivalents, we can see that each of the ADVs in 6 will affect the interpretation of the previous utterances accordingly. If we take sentence 3 and add the adverbial "these days" as in 7 below:

7.Y:Lìtáyàlà lílà lì-kú-úlíkà àgàndò mówá gánó
C:Táyàlà lìjà lì-kù-phúlíkà màsíkù àndò
E:The tyre is exploding these days

for example, we no longer have any doubts as to whether the explosion is coincident with or comes before or after the speech time of the utterance ( as was the case with the interpretation of 3). 7 conveys the frequency of the explosion of the tyre. In other words, the deictic adverbials in 6 will tend to overwhelm the "original" meaning of 3 or rather emphasise the frequency of this original meaning. Different adverbials will naturally signal different interpretations of the utterances with which the VPs plus -ku- or its English equivalents

might appear. The temporal meaning denoted by the "present" affixes may also be modified in the context of other deictic adverbials. The examples in 8 and 9 show how.

8. Y: tò-kú-útúkà málǎwì

C: tì-kù-thámángá mǎwà

E: we are running tomorrow

9. Y: Nnùngù úmási'é'wù tùtùtéjè tò-kú-útúkà lísó

(week last this we said we run yesterday)

C: Mlùngù wáthà'wù tìmátí tì-kù-thámángá dzùlò

(week last this we said we run yesterday)

E: Last week we said we were running yesterday

Note particularly in Yao and Cheŵa how the adverbial changes the "original" meaning of the utterances in 8 and 9 causing them to refer to the future or the past time of the event respectively.

The point we would like to stress with regard to the interpretation of the so-called present continuous tense marker is that the situation where this marker has the force of either tense or aspect is not new. Both traditional and recent work on the subject note it. (Cf. Quirk et al. *ibid*; and Comrie, 1976, especially chapter 5). The way we interpret these markers in utterances depends therefore on the kind of temporal

adverbial with which they occur, i.e. some are deictic others are not and this affects the choice of aspect or tense as the intended interpretation.

There is a further type of present, referred to as the "narrative" present, which requires some mention. In English this is represented by the suffix *-s* (or *-es*), or sometimes zero, attached to the verb. In Yao and Chewa this usage is indicated when the subject prefix, which is usually attached to the marker *-ku-* or the verb root, is absent. The point is best illustrated given a series of VPs used to describe the narrated event as in 10:

10. Y: ChéWájàbù kù-póchélà mpìlà, kù-lísyá  
njómbà, nè kwà-péla Keegan

C: Wájàbù kù-lándíla mpìrà, kù-dyétsá  
njómbà, ndì kù-pátsíla Keegan

E: Wajabu gets the ball, dribbles, and  
passes to Keegan

Generally however, the narrative present is expressed when the subject prefix is attached to the verb root without an intervening prefix *-ku-* in the case of Chewa and with *-ku-* for Yao as in 11.

11. Y: ChéWájàbù à-kú-póchélà mpìlà

C: Wájàbù à-(kù)-lándírà mpìrà

E: Wajabu gets the ball

The "unrestricted use" of the present tense (Cf. Leech, 1971) also sometimes referred to as the "generic" use, is expressed in Cheŵa and English by the use of the so-called "copula" and by zero in Yao, as in 12.

12. Y: Líná lyángù Wájàbù

C: Dzínà lánɡá ndì Wájàbù

E: My name is Wajabu

Proverbial expressions which denote the timelessness of the situations which they describe, are also generally thus expressed.

We might note finally the habitual present marker, which is really an aspectual marker as we saw in the last chapter, and is "present" only because it behaves like the -ku- which we have just discussed. When -ma- for Cheŵa and -sa- + V + (-ga) for Yao are used to express a form of habituality which might be said to be simultaneous with the speech time, that is, when the speech time is located in the "timelessness" of the event, the notion of habitual present might be justified. Each of the examples we provided in the previous chapter will stand as an illustration.

We might just underline the claim of this section for the interpretation of present tense generally: assuming a quasi-Reichenbachian definition of present tense as simultaneity of the speech time with the event time (Cf. below for an exposition of these notions), we can claim that -ku- marks present tense on its own. But following Smith C.S. (1977) such sentences (with tense markers like -ku- ) are generally vague in isolation. The time which they signal is understood better when they co-occur with appropriate deictic temporal adverbials. These in turn depend in part on the category of the VPs.

#### 4.1.2 The interpretation of past time markers

The general marker of past time in Cheŵa is -na- or its variant -da- . In Yao however, it is common to assume that the past is marked first by the verb root being put into the subjunctive form and then having the subject prefix (which must have -a as its final vowel) attached to it. In English past time is of course, marked by -ed for "regular" verbs, or by sundry variants otherwise. 13 exemplifies these facts.

13. Y: ChéWájàbù wà-úlèjé ngúkú lísó

C: Wájàbù à-ná-phá nkhúkù dzùlò

E: Wajabu killed a chicken yesterday

On these terms, Chewa and English probably have the easier and more consistent way of marking past time than Yao, i.e. Yao is less predictable. Yao's morphological form of past tense is dependent on other factors which we simplify here and lump together as being "subjunctive factors".<sup>3</sup> The facts can be illustrated as in 14.

14. Y: <u>simple verb root</u>	<u>subjunctive form</u>
-úlágà	-ùléjè (kill)
-témàngùlà	-tèmàngwìlè (break)
-útúkà	-ùtwíchè (run )
-sálá	-sàsílè (say)
-wéchétà	-wèchètè (speak)

(For a fuller morphological treatment of these data refer to Sanderson, 1922; and especially Whiteley, 1966). If we assume that the subject prefix for an NP like Wajabu is wa - and that in the first person plural tu- becomes twà- etc., we can say that by combining twà- with the subjunctive form of the verb in 14, we form the past tense as in 15 below.

15. (a) twà-témàngwìlè (we broke)  
 (b) wà-wéchètè (he/she spoke)

Note the slight change in the tone marks influenced by this



combination of the subject prefix with the subjunctive verb form. This then is how the so-called general past is usually expressed morphologically. As should be expected by now, the interpretation of the "simple past" time that these utterances contain is again dependent on the temporal adverbials. 13 and 15 easily co-occur with adverbials like yesterday or last year or a minute ago.

16. Y: ChéWájàbù wà-úlèjé ngúkú mwáchěsò

C: Wájàbù à-ná-phá nkúkú chàká chátà

E: Wajabu killed a chicken last year

The difference between 13 and 16 is simply that between the temporal adverbials i.e. the difference is in the distance there is between the event time and the speech time of the utterances. In 16 the event is interpreted as being further away from the speech time of the utterance than it is in 13. And if we had an adverbial which was equivalent to "a minute ago", the distance would be only "theoretically" more distant from the speech time of the utterance in 16 than say, it would be for the interpretation of the "perfect" for instance in 13.

#### 4.1.3 The difference between the "simple past" and the "present perfect"

Before we describe the difference between the simple past and the present perfect interpretation, let us first

sketch two other "pasts" which are relevant to the issue. The first is what is mostly referred to as the "immediate past". In Cheŵa this is marked by the so-called habitual marker -ma- and in Yao by a variant of the iterative marker -ga. 17 illustrates the point.

17. Y: tù-ùtwíchè-jè mjàhò pàngákàwá'pà  
 C: tì-mà-thámángá mjàhò pòsàchédwà'pà  
 E: we were running a race just now

In the context of the "present time" adverbial given, 17 refers to immediate past. But in the context of the "long distance" temporal adverbial like "in those days" 17 takes on a past habitual reading as is exemplified by 18.

18. Y: tù-ùtwíchè-jè mjàhò jé'ndàwí'jò  
 C: tì-mà-thámángá mjàhò ntháwì ìménè'yò  
 E: we would run a race in those days

This type of habitual past can also be expressed by the "copula" -li for Yao and -nka- for past habitual marker, for Cheŵa; and "used to" for English as in 19.

19. Y: twà-lí-jì nkù-útúkà mjàhò jé'ndàwí'jò  
 C: tì-nká-thámángá mjàhò ntháwì ìménè'yò  
 E: we used to run a race in those days

Cheŵa could also express the same idea using the "copula"

i.e. -lì, instead, as in 20.

20. C: tì-ná-lì kù-thámángá mjàhò ntháwì ìménè'yò

E: we used to run a race in those days

But the reason why we group these utterances under this section is because, to all intents and purposes, the distance of the time of the event from the speech time of the utterances in these examples, is often inferred on pragmatic grounds. 17 - 20 could co-occur with an adverbial like "today" for example, hence bringing the event time even closer to the speech time, without inducing ungrammaticality. In other words, these utterances, 17 -20, could be used where we would normally use the so-called present perfect.

Generally however, the "present perfect" is expressed in Yao by attaching the subject prefix to the subjunctive form of the verb root without any intervening marker. In Chewa the last vowel of the subject prefix is usually -a and this is attached to the verb root with a zero marker intervening. 11 illustrates the point.

21. Y: ChéWájàbù à-jìgélè chítábù chilà

C: Wájàbù wà-tèngà búkú lìjà

E: Wajabu has taken the book

The difference in meaning between the present perfect and the simple past has been difficult to clarify within

truth-conditional treatments as well. 21 and 22 for example, are truth-conditionally similar.

22. Y:Chéwájàbù wà-jígèlé chítábù chilà

C:Wájàbù à-ná-tèngà búkú lìjà

E:Wajabu took the book

That is, propositions expressed by the utterances in 21 and 22 are said to be true at some point in time which is anterior to the speech time of the utterance (Cf. the Reichenbachian treatment adopted below).

In other descriptions however, (Cf. Bull, 1963, and others) the present perfect subsumes what we call here the speech time of the utterance, that is, there is as it were, a continuous temporal line which stops where the temporal stretch of the speech time stops and these two temporal lines overlap. With the simple past however, this is not the case.

It is important to remember however, that for Yao and Chewa, the problem of the difference between the simple past and the present perfect is not entirely parallel to that of English. In English the so-called present time denoting adverbials that we saw in 6, e.g. "recently", are supposed to co-occur with the perfect while past time adverbials like "yesterday" or "last year" co-occur with the simple past; but in Yao and Chewa there are

no such constraints. What is germane to all the three languages is the notion of "current relevance" as it has been discussed extensively by McCoard (1978), Inoue (1978. 1979) and others. Most of these descriptions emphasise however, the same point we made earlier, that the perfect is to be interpreted as signalling time which is relevant to the speech time of the event in question, whereas the simple past denotes a time which is distinct from the speech time.

We might sum up this rather inconclusive feature of the difference in meaning between the simple past and the present perfect by considering the following two utterances.

23. Y: Chéwájàbù à-ùtwíchè pàngákàwá'pà

C: Wájàbù wà-thámángá pòsàchédwà'pà

E: Wajabu has run just now (recently)

24. Y: Chéwájàbù à-ùtwíchè tùmbindì tùwìlì tùtúmásílé'tù

C: Wájàbù wà-thámángá mphìndì zìwírì zàthà'zì

E: Wajabu ran two minutes ago/these last two minutes

The point which is difficult to resolve semantically is the interpretation of the relative closeness to the speech time that the English versions in 23E and 24E particularly denote. It is not clear semantically why we should assume for the interpretation of 23E that the

event is currently relevant when in terms of actual occurrence 24E might be regarded to be even closer to the speech time than 23E, and hence perhaps more currently relevant. It seems to us however, that this is a misrepresentation of the nature of semantics and that the distinction between the simple past and the present perfect ought to be resolved pragmatically along the lines indicated in the last chapter.

#### 4.1.4 The interpretation of future time

The following utterances include what might be called the most basic future time markers or means of expressing the future time

25. Y: tù-kú-útúkà málǎwì  
C: tì-kù-thámángá mǎwà  
E: we are running tomorrow

26. Y: tú-tú-ùtùchè málǎwì  
C: tí-thámángá mǎwà  
E: we run tomorrow

27. Y: tù-chí-ùtùkà málǎwì  
C: tì-dzá-thámángá mǎwà  
E: we will/shall run tomorrow

We note that 25 is essentially progressive; it refers to the future only because of the presence of the future adverbial. 26 is sometimes referred to as either immediate future or a future which is planned or scheduled (Cf. Huddleston, 1969 and others for English). And in Yao and Chewa 27 is said to signal the distant future. Dowty (1979) calls 25 the future progressive, 26 the tenseless future and 27 the regular future. There is consistent proliferation of terminology on the subject in the literature both traditional and recent, often causing confusion. But two points appear to emerge about how we interpret these markers or the sentences in which they appear.

The first interpretation concerns the scheduling of the event which is described when sentences of the form 26 are uttered (Cf. Huddleston, 1969; Goldsmith & Woisetschlaeger, 1982; Prince, 1982, and others, often using different nomenclature). Clearly, there is an aspectual difference between 25 and 26 (or 27 for that matter) as 25 involves a VP which is in the progressive form. This point has been noted by Smith C.S (1981, 1982) that is, 25 is imperfective by virtue of its being progressive and 26 is perfective. For Dowty (1979) both 25 and 26 entail some form of scheduling of the event, but they differ (as we are going to indicate in the next chapter, when we discuss "inertia worlds") in that 26 must

be true in all future histories whereas 25 will be true only in some (inertia worlds) future histories - this is clearly because of the presence of the PROG operator (Cf. chapter five).

As we have been assuming all along, when these utterances (which are in effect vague) co-occur with deictic adverbials and we take into consideration problems of extra-linguistic context, some of the vagueness with which they are imbued might be resolved. The question whether one form in one context refers to distant future or immediate future or indicates scheduling or not is best answered pragmatically then.

Other kinds of future are represented by the utterances in 28 and 29 below:

28. Y: tú-tú-kà-útúchè

C: tí-ká-thámángá

E: we will be going to run

29. Y: tù-tù-chí-ùtùkà-gà

C: tì-dzí-dzà-thámángà

E: we will be running

What is sometimes referred to as the "prospective future" is expressed by 28 which indicates that "we will be going with the aim of wanting to run". And 29 expresses the idea that in some distant future we intend to be



engaged in running. As we saw with the aspectual markers, tense markers could also co-occur with each other sometimes overruling each other's meaning in the process and sometimes not. And as with the interpretation of past time, the distance between the time in which the event is expected to happen in the future and the speech time of the utterance is generally vague, though temporal adverbials and extra-linguistic factors of context and subjective choice or judgement will help resolve the problems.

#### 4.1.5 Immediate past and future versus remote past and future

Johnson (1977, 1981 etc.) mentions an interesting point which is pertinent to a unified interpretation of aspect and tense in Kikuyu in particular but Bantu generally. This phenomenon is so important to her that she has to supplement the Reichenbachian framework for the interpretation of tense, which she adopts, with a third category (besides tense and aspect): the so-called "existential status". This category is meant to account for the notion of the "immediate, near and remote" past or future which are morphologized in Kikuyu. If we take the expression of past time in Chewa alone for example, the notion of immediate, near or remote past might be worth indicating. This is particularly called for where

the morphological markers concerned mark these times unambiguously in almost all contexts (both linguistic or non-linguistic).

The Cheŵa examples in 30, immediately come to mind.

30. (a) *tì-ná-thámángá* (we ran)  
(b) *tì-nâ-thámángà* ( we ran but  $\alpha$  as well )  
(c) *tì-nà-thámángá* ( we ran/have run)

It is easy to claim that there might be three kinds of past time expressed unambiguously in 30. 30(a) has been called "remote past" for example, because it co-occurs easily with a "distant time" deictic adverbial such as "last year". 30 (b) might be said to signal a "near" past time because it refers to not too distant a time in the past; it is a past which is also "consequential" in that it denotes that the process took place sometime in the past and there was some consequence  $\alpha$  resulting from it. 30(c) has been termed the immediate past as it is normally translated as equivalent to the present perfect.<sup>4</sup>

Generally however, most of these "default" interpretations can be overruled in the context of temporal adverbials. The only safe claim we might make about the sentences in 30 for instance, concern 30(a) which might be said to refer to any time denoted by an adverbial which refers to a time well anterior to speech time

like "yesterday" and any other time prior to "yesterday". This is why if we add an adverbial which potentially overlaps with "present time" as in 31:

31. tì-ná-thámángá lèrò

we ran today (on a day like today)

the utterance is interpreted as meaning the event happened some time ago today. Otherwise 30(b) and 30(c) can co-occur with distant or immediate time temporal adverbials given the appropriate contexts (both linguistic and extra-linguistic).

The point we would like to stress is that although traditional and other grammarians have latched on to the notion of immediate, near or remote past or future time, this is not a hard and fast rule for our languages. Usually the decision as to how immediate, near or remote past or future time is from the speech time is dependent on subjective factors. Immediacy, nearness and remoteness are essentially pragmatic notions which ought to be resolved pragmatically. Johnson herself (1981; 167-168) actually concedes the point when she says,

there is evidence that HOW near or far from the moment of speaking the position of each past time interval is depends on a variety of contextual factors... Clearly, there are significant pragmatic factors that must be

taken into account in interpreting the Kikuyu (and other Bantu) tenses. However, ... I do not have the data that would allow these principles to be built into the analysis of tenses given here... 5

As we suggest in the final chapter, it is not in fact the absence of the data which is important here; rather the absence of a pragmatic theory which might handle these cases of the vagueness of utterances in the interpretation of tense, that is at the centre of the matter. And given the "principle of relevance" as developed by Sperber & Wilson (1982, and forthcoming) we indicate briefly how the resolution of such problems might proceed (Cf. chapter six). The same argument stands for what Johnson calls the immediate, near and remote future interpretation. We will not repeat the argument here.<sup>6</sup>

#### 4.2 An outline of the Reichenbachian interpretation of tense

In this section we would like to provide a sketch of one of the most influential models for the treatment of tense for natural language. As we indicated in the second paragraph in 4.0, Reichenbach proposed a theory for the interpretation of tense based on three temporal primitives: the moment of speech (S), the moment of the event (E) and

some other reference time (R). The various ways in which we interpret tense in any language, whether or not this category is assumed to be grammaticalised or covertly expressed, can, in principle, be described using these three temporal constructs. S is the central primitive to which E and R are linked. The appropriate interpretation of utterances will therefore involve indicating the relative order of the three notions. E could be anterior to, posterior to, or simultaneous with S, and both E and R in turn could be anterior to, posterior to, or simultaneous with S etc. Simultaneity is indicated by a comma and precedence by a dash between the three primitives. This gives us thirteen possible "tenses" as indicated in the table below.

Table A: a list of all possible combinations of the three temporal primitives according to Reichenbach, (p.297).

<u>Structure</u>	<u>New Name</u>	<u>Traditional Name</u>
E - R - S	Anterior past	Past perfect
E , R - S	Simple past	Simple past
R - E - S	Posterior past	-
R - S , E		
R - S - E		

<u>Structure</u>	<u>New Name</u>	<u>Traditional Name</u>
E - S , R	Anterior present	Present perfect
S , R , E	Simple present	Present
S , R - E	Posterior present	Simple future
S - E - R	Anterior future	Future perfect
S , E - R		
E - S - R		
S - R , E	Simple future	Simple future
S - R - E	Posterior future	-

In the above framework, the interpretation of a sentence such as 32:

32. Y: ChéWájàbù wà-jígèlé chítábù lísó  
 C: Wájàbù à-ná-téngà búkù dzùlò  
 E: Wajabu took a book yesterday

might go thus: the time in which the utterance is made is S. The time when the event of taking the book took place E is simultaneous with the reference time R' denoted by the deictic adverbial "yesterday". Both E and R refer to time prior to the speech time of the utterance S. This could be represented thus:

33. E , R - S

The present tense is interpreted as having E and R and S simultaneous with each other. So that a sentence like 34:

34. Y: ChéWájàbù à-kú-útúkà sàmbánd jínó

C: Wájàbù à-kù-thámángá tsópànó línó

E: Wajabu is running right now

where the three temporal primitives E, R and S coincide can be represented as 35:

35. E , R , S

The future tense could be indicated by the temporal ordering of the three constructs thus:

36. S - E , R

This would correspond to the interpretation of utterances like 37.

37. Y: ChéWájàbù tà-chí-ùtùkà málâwì

C: Wájàbù à-dzá-thámángá mawà

E: Wajabu will run tomorrow

There are also utterances like 38 where E and R are not simultaneous with each other, but where E precedes R:

38. Y: ChéWájàbù wà-lí-jì á-lì à-pýtè pìtwàíkàgá

C: Wájàbù nkútí á-tá-pítà pàméné tí-má-fíkà

E: Wajabu had gone when we arrived

Here all three times must be different as is represented by 39:

39. E - R - S

where the event time is prior to the reference time which in turn is prior to the speech time.

And so the interpretation of tense in utterances proceeds thus, identifying the two times (i.e. E or R) and indicating how they are related to S, i.e. according to whether or not they are prior to, posterior to or simultaneous with S. We give below a representative list of utterances in the three languages (pp 140- 142) followed by their corresponding temporal structure to indicate how we interpret these utterances. Before we present these utterances however, let us clear up one point about the orthogonal nature of the aspect and tense relationship.

#### 4.2.1 Towards a unified treatment of aspect and tense

Reichenbach's original treatment of tense took into account only two aspectual concepts. The continuity (or progressivity) of an event over time, was represented by an arrow written over E thus:  $\vec{E}$ . Iteration of an event was accounted for by dots put over E thus:  $\ddot{E}$ . On these terms, a unified treatment of aspect and tense according to the original Reichenbachian proposal for an utterance such as 40:



40. Y: ChéWájàbù wá-kú-lyá-gà màjàní

C: Wájàbù á-mă-dyá ànyání

E: Wajabu eats monkeys

can be represented as in 41,

41. S , R ,  $\ddot{E}$

which indicates that the event of eating is iterated and that the utterance refers to present time. If Wajabu is engaged in the eating now, the sentence in 42 might be the natural one to express.

42. Y: ChéWájàbù à-kú-lyá líjàní sámbándò jínó

C: Wájàbù à-kú-dyá nyání tsópànó línó

E: Wajabu is eating a monkey right now

According to the Reichenbachian framework, the interpretation of 42 might be represented by 43:

43. S , R ,  $\vec{E}$

which says, Wajabu is in the process of eating the monkey at the time of speaking.

Given the aspectual concepts discussed in the previous chapter however, we might like to add other aspectual features over the event E. First, it is necessary to indicate that E itself has to be understood as

referring to either activity, accomplishment, achievement, or state VPs. Reichenbach does not of course, explicitly say this. But given how we defined aspect in chapter three, this is a natural outcome. As we claimed that accomplishments and achievements suggest an end-point (i.e. are telic, according to Garey, 1957; Dahl, 1981 and others), we might represent the temporal structure which they suggest as in 44 (as we have seen):

44.      —}]

There are also other event VPs which have a temporal stretch which is initially closed. These VPs are represented as we saw in the last chapter as 45 below:

45.      [—

VPs like "start" or "commence" etc. belong to this group. Other VPs like "resume", "continue" etc. which we said expressed "resumptive aspect" might be represented graphically by a combination of 44 and 45 thus:

46.      —}] [—

46 indicates that the event which might have reached an end-point some time in the past begins again. The gap between the two temporal stretches in 46 indicates the time when the event is temporarily stopped.

Given 44 -46, we can now be more specific about the aspectual character of the event E. E could have any of the temporal stretches in 44 - 46 written over it to indicate that the event is "completive", "inceptive" or "resumptive" respectively. A unified treatment of aspect and tense within a Reichenbachian framework which takes into consideration the facts just noted, for the interpretation of 47 for example,

47. Y. ChéWájàbù à-màlísyìsyè mäsèngò gálà  
C: Wájábù wà-màlìzà ntchítò ìjà  
E: Wajabu has finished the work

might be represented as in 48.

48.  $\overline{E}$  - S , R

48 claims that the event which is characteristically completive in aspect takes place prior to the speech time of the utterance which is simultaneous with the reference time. That is, both S and R which overlap are posterior to the completive  $\overline{E}$  .

Where the utterance is aspectually inceptive as in 49 below:

49. Y: ChéWájàbù wà-tándíté mäsèngò gálà  
C: Wájábù à-ná-yàmbà ntchítò ìjà  
E: Wajabu started the work

we might represent its interpretation as in 50:

50.  $\vec{E}$ , R - S

As for the resumptive aspect, we might represent an utterance such as 51 as in 51E.

51. Y: Chéwájàbù wà-tándìlìlé màsèngò gálà

C: Wájàbù à-ná-yàmbìlìlè ntchítò ìjà

E: Wajabu resumed the work =  $\vec{E}$ , R - S

This then is how we might go about indicating a unified treatment of aspect and tense without too much departure from the original Reichenbachian framework.<sup>7</sup> We can now provide a number of representative sentences with their interpretation according to the model adopted in this section. The list which is not meant to be exhaustive, is particularly intended to show how some problems of the interpretation of tense and aspect (which we discuss in the next chapter slightly more fully), might be resolved in some cases and in others fail to be resolved (Cf. the next section and footnote 7).<sup>8</sup>

A list of representative sentences and their meaning according to the Reichenbachian framework :

52. Y: Chéwájàbù à-lì nkù-lyá mǒngú

C: Wájàbù à-lì kú-dyá màúngù

E: wajabu is eating pumpkins = S, R,  $\vec{E}$

53. Y: Chéwájàbù wá-lì-jí á-lì àlílè lísó

C: Wájábù à-ná-lì á-tá-dyá dzùlò

E: Wajabu had eaten by yesterday =  $\vec{E} - R - S$

54. Y: twá-lì-lé mǒngú lísó

C: tì-ná-dyà màúngù dzùlò

E: we ate pumpkins yesterday =  $\vec{E}$ , R - S

55. Y: tù-lìlé mǒngú lǎlò

C: tà-dyà màúngù lèrò

E: we've eaten pumpkins today =  $\vec{E} - S$ , R

56. Y: tù-kú-lyá mǒngú mówá gósòpé

C: tí-mà-dyá màúngù màsíku ónsé

E: we eat pumpkins everyday = S, R,  $\vec{E}$

57. Y: tù-kú-lyá mǒngú sàmbánò jínó

C: tì-kú-dyá màúngù pànó'pá

E: we are eating pumpkins now = S, R,  $\vec{E}$

58. Y: tú-tú-lyè mǒngú pángákàwá'pà

C: tí-dyá màúngù pósàchédwà'pà

E: we will eat pumpkins soon = S - R,  $\vec{E}$

59. Y: tù-tù-chí-lyà mǒngú málâwì

C: tí-dzá-dyà màúngù mǎwà

E: we will eat pumpkins tomorrow = S - R,  $\vec{E}$

60. Y: tú-tú-kà-lyé-jè mǒngú

C: tí-dzí-ká-dyà mǎungù

E: we will be going to eat pumpkins = S - R - <sup>→</sup>E

61. Y: tù-tì-té-jè tù-kà-lyé mǒngú

C: tì-má-tí tì-ká-dyè mǎungù

E: we were going to eat pumpkins = R - <sup>→</sup>E - S  
(on one interpretation)

62. Y: tù-tì-té-jè tù-lyè mǒngú lě̀lò

C: tì-má-tí tì-dyé mǎungù lèrò

E: we were eating pumpkins today = R - S , <sup>→</sup>E

63. Y: lǐsǒ tú-tì-té-jè tú-lyè mǒngú málâwì

C: dzùlò tì-má-tí tí-dyé mǎungù mǎwà

E: yesterday we were eating pumpkins tomorrow  
= R - S - <sup>→</sup>E

64. Y: tú-tú-wè tú-lì tù-lǐlé mǒngú jé'ndàwí'jò

C: tí-khálà tí-tá-dyá mǎungù ntháwí ìménè'yò

E: we'll have eaten pumpkins then = S - <sup>→</sup>E - R

#### 4.3 Some limitations of the Reichenbachian model

The claim that this framework makes for the interpretation of tense in all utterances of natural language is obviously attractive. The problem of the interpretation

of the "simple past" versus the "present perfect" which we said was so difficult to resolve within the truth-conditional treatment (Cf. chapter five) for example, is resolved by indicating the appropriate order of the three primitives for each of the utterances (Cf. 48 and 50).

Other issues that this model handles more elegantly than most, is that of the provision of the appropriate construal of complex utterances which contain a sequence of tenses and where several temporal adverbials of different types co-occur in one utterance making it difficult to locate the time that the utterance intended (Cf. Smith, C.S. , 1978).<sup>9</sup> Clearly, the model is also attractive because it depends on theoretical primitives which are neutral to morpho-syntactic configurations of individual languages.

There are however, one or two limitations which the model appears to be unable to handle clearly as developed so far. One, concerning the status of the third primitive ( the reference time) has been questioned by McGilvray (1974). And Comrie (1981b) indicates how this primitive appears to be unnecessary in certain constructions. R is definitely necessary for utterances like 38 which are interpreted in the form of 39. In most of the utterances where R and E are simultaneous however, there appears to be no need for postulating the third primitive (R). The

conclusions reached by Comrie (1981b) on the issue apply here.

Perhaps more seriously than this, Wachtel (1982) indicates five objections to Hornstein's (1977) interpretation of the Reichenbachian framework. These show that the model fails to account for the meaning of certain utterances. Essentially these concern the interpretation of one or more utterances which have the same E, or R and S structure where there appears to be some (intuitively semantic ) difference between them. Take the following utterances taken from Wachtel (p. 336).

65. E: John comes home tomorrow

Y: ChéJónì à-kwísá kúmùsì málǎwì

C: Jónì á-fíkà kùmùdzì mǎwà

66. E: John will come home tomorrow

Y: ChéJónì tà-chí-ìkà kúmùsì málǎwì

C: Jónì à-dzá-fíkà kùmùdzì mǎwà

It is claimed that 65 suggests John's s coming as a scheduled, planned, calculated or somehow pre-structured event, according to what Huddleston (1969), Goldsmith & Woisetschlaeger (1982), Prince (1982) etc. believe about the English examples. This and many others are typical of those problems which even truth-conditional analyses of the Montague kind for instance, fail to handle. We



suggest that these problems be resolved within pragmatics rather than the semantics which we discussed in this chapter or that which we sketch in the next.

FOOTNOTES TO CHAPTER FOUR

1. It must be clear by now that this thesis is not particularly concerned with the morphological description of tense. For a fuller treatment of the various morphological rules for the formation of past, present and future "tenses", readers are referred especially to Whiteley's (1966) work on Yao which we consider to be representative of the best "traditional" description of most Bantu languages. For this reason we will not be concerned with lists of tables of morphological markers of tense, as might be expected.

2. Clearly, our "traditional" interpretation here, is influenced by the Reichenbachian framework which we in fact, introduce later in this chapter.

3. We refer to these factors as "subjunctive factors" because the morphology of tense is bound up with that of mood. This area is beyond the scope of this thesis. Suffice it to say that it is easier to understand how the perfect or past tense is formed in Yao if we assume that the subjunctive rule formation operates on the VP first.

4. What marks the three tenses in 30 is clearly the

assignment of the appropriate tone to the past time marker -na- for Chewa.

5. On these terms, it might be tempting to reject even the very innovative notion that Johnson introduces i.e. the so-called "existential status" which is proposed by and large, to cope with the problems of nearness, immediacy or remoteness of past or future time from the speech time. This is particularly the case should a more elegant pragmatic principle that might resolve these issues appear ( as it happily now does: Cf. chapter six where we indicate which).

6. We have not indicated all the cases where tense is marked in Yao or Chewa in the above sections. We have in particular not indicated the interaction of tense markers with "auxiliary" VPs. Some of the utterances where these VPs are used are listed with their interpretation according to the Reichenbachian model, without really discussing them at all (Cf. sentences 52 -64 ).

7. Notice how the problem of the difference in interpretation between the "simple past " and the "present perfect" for sentences 49 and 47 are resolved by 50 and 48 respectively. Notice also that there is no reason why we might not represent both the completive temporal structure say, and the progressive temporal structure over E where a completive VP might be in the progressive form etc.. The page might look a bit messy, but we would have gained more conceptual clarity.

8. The list of sentences provided here is only representative of some of the interpretation of utterances within the framework developed by Reichenbach. The aspectual temporal structure superscripted over E is one representation of activity VPs which we have assumed have gaps. States would normally be represented as gapless temporal lines according to the claim of the previous chapter. This much is not really too controversial. We have left the lines over E open although it might be argued that it would be better if we closed them on both ends for events that took place at a time prior to S.

9. Although the issue of the interpretation of utterances with a sequence of tenses is important, we do not have any

new ideas to add to those already presented by Smith C.S. (1978). Readers interested in the treatment of sequence of tenses and (constraints on) co-occurrence of tenses with temporal adverbials within the present framework, are strongly recommended to that work.

## CHAPTER FIVE

### SOME LIMITATIONS OF THE TRUTH-CONDITIONAL TREATMENT OF ASPECT AND TENSE

#### 5.0 Introduction

It is widely acknowledged throughout the literature that the classical truth-conditional treatment of aspect and tense as pioneered by Prior (1967) and others, has limitations<sup>1</sup> which manifest themselves particularly in the description of such problems as the so-called "imperfective paradox", the "gaps problem" and what we might refer to generally as problems for aspect and tense of the interpretation of indeterminate or vague utterances. This chapter deals with these issues. It examines the various proposals which have been offered to resolve these problems within the truth-conditional, model-theoretic and "possible worlds" framework of the Montague-type (Cf. Dowty, et al. (eds), 1981 : 3-13, for a clear exposition of the use of the three notions generally), and finds them wanting.

This chapter concentrates on how Dowty (1977, 1979), Bennett (1981) and Vlach (1981) and others have attempted to resolve the problems at hand within a Montague-type of framework. We start by a brief discussion of Vlach's (1981) so-called "recursive definition" of truth. We then

consider the various truth conditions proposed for the interpretation of the Progressive in English to account for such issues as the gaps, the imperfective paradox etc. We demonstrate that although the truth conditions proposed by Dowty, Bennett and Vlach are perhaps generally plausible from the semantic point of view, they fail to account for the pragmatic factors involved in the interpretation of such utterances. That is, the truth conditions proposed for the treatment of certain facets of aspect and tense purport to handle pragmatic factors involved in the interpretation of temporally vague utterances but they generally fail. This clears the ground for the pragmatic approach which we propose in the next chapter.

### 5.1 The search for a recursive definition of truth

The truth-conditional treatment of aspect and tense as pioneered by Prior (1967) and others, has always taken the assignment of the truth value of propositions expressed by utterances "at" instants or moments of time as standard. If we take the example in 1:

1. Y: Chéwájàbù à-témángwílè lùkóngòlò pà ténì kòlòkò  
C: wájàbù wà-thyòlà mwèndò pà ténì kòlòkò  
E: wajabu broke a leg at ten o'clock

the proposition expressed is evaluated to be true or false "at" the instant (or the stroke) of ten. Alternatively, Wajabu will be taken to be in the extension of the predicate (or VP) "break" "at" the instant of time given (i.e. ten o'clock) in some possible world.

Where there has been a shift from this position, where the "instant" has been replaced by the "interval" for instance, individuals have been taken to be in the extension of predicates still "at" the appropriate interval of time. In 2 below,

2. Y: ChéWájàbù wà-kāmwilé māsèngò līsó

C: Wájàbù à-ná-gwírà ntchítò dzùlò

E: Wajabu worked yesterday

the proposition expressed is true or false "at" the interval of time that liso, dzulo (yesterday) denote.

And where intervals of time are taken to constitute subintervals (Cf. Bennett & Partee, 1978), propositions are true or false "at" subintervals of time. In the case of "activity propositions" for example (as we saw in chapter three), the truth of the proposition at the subinterval of time is construed to indicate its truth at the larger interval of time of which the subinterval is a part. This situation holds for the interpretation of "stative propositions" as well. But the truth of "event propositions"



at intervals of time does not necessarily guarantee their truth at each subinterval of time (often causing thereby the imperfective paradox to which we will turn presently). This tradition persists in such recent interval-semantics treatments of aspect and tense as Bennett & Partee (1978), Bennett (1981), Dowty (1977, 1979, 1982), Heny (1982), Richards (1982) and many others where not only are propositions true or false "at" intervals or subintervals of time, but more important, where the notion of "truth at" is assumed to be the basic notion, and the truth of a given proposition at an interval of time is supposed to guarantee its truth at all instants or subintervals which constitute the interval.

This classical treatment of truth is, however, limited with regard to the interpretation of certain utterances. The point is clearly made by Dowty (1979: 137-138) when he says:

a fundamental limitation of the aspect calculus as developed so far, a limitation it shares with virtually all previous formal treatments of tense and time reference ... lies in taking the notion of the truth of an atomic sentence at a moment of time as basic, rather than the truth of a sentence over an interval of time. One can of course express in a certain sense the fact that a sentence is true

over a certain interval by means of the AT operator and quantification over time ... But in all these cases an "interval" sentence counts as true just in case one of its embedded atomic sentences is true at all moments during that interval ... It is this "independence" of the truth of its constituent sentence(s) at all moments within the interval that traditional tense logic is not equipped to deal with.

It is also clear from other recent work that the classical assignment of truth of propositions "at" instants, sub-intervals and intervals of time especially for event propositions, is semantically incomplete and pragmatically fails to reflect accurately how propositions are interpreted or processed for comprehension in actual discourse <sup>2</sup>.

Take the central problem of the semantic interpretation of the Progressive in English which Vlach (1981) discusses. First, as Vlach (pp. 275-276) in footnote 8 himself claims, there is no apparent justification for assuming that the truth of propositions "at" instants or intervals of time is the basic notion, a point which echoes Dowty's sceptical remarks above. Furthermore, Vlach implies that the continuation of the assignment of the truth of propositions "at" intervals and subintervals of time, limits the search for a "recursive" definition of truth. Vlach is also

obviously concerned about Bennett & Partee's proposed subinterval property of time which he wants to reject as a preliminary move to his own proposals for the truth conditions for the Progressive in English and which he also probably thinks (as we do) contributes to the gaps problem rather than helping to resolve it. Vlach's proposed compromise therefore, that propositions be treated "at" the interval, "in" the interval and "for" the interval of time (footnote 8) does not come as a surprise. We see it as being essentially double-barrelled: it is meant to provide, inter alia, a recursive definition of truth as well as indicate the direction of a possible solution to the gaps problem (Cf. below).

#### 5.1.1 The "Gaps Problem" in the interpretation of aspect

We believe that Vlach's proposal is in the right direction. In defence of the three notions of truth for example, it is plausible to claim with Vlach that in 3, the proposition expressed ought really to be assigned its truth "at" the relevant time (2.00).

3. Y: ChéMákìsì wá-wìché pènáńí'pò 2 kòlòkò

C: Mákìsì à-ná-fíkà pàmwàmbá'pò pà 2 kòlòkò

E: Max reached the top at 2.00

But the proposition in 4 is accurately evaluated "for"

the hour-long interval of time. This is particularly clear given the "enduring" nature of the temporal structure of stative VPs which we argued for in chapter three.

4. Y: ChéMákìsì à-tèmí àpàno ólà jímò

C: Mákìsì wà-khàlà pàno ólā līmódzì

E: Max has been here for one hour

That is, 4 is true if and only if there exists an hour-long interval of time such that "Max be here" is true "for" that hour.

5. Y: ChéMákìsì wà-táwílè nyumbà cháká chá 1972

C: Mákìsì à-ná-màngà nyumbá cháká chá 1972

E: Max built a house in 1972

As for the proposition expressed in 5, its truth can be evaluated "in" the appropriate 1972 interval of time. Given the appropriate temporal adverbials then, Vlach's claim about the three notions of truth is patently adequate for the accurate interpretation of such propositions as 3 - 5.

However, a consideration of the truth of propositions in relation to their use, which might be suggested in the spirit of Austin (1962) who called for a distinction to be made between the truth of propositions and their appropriate

use in discourse or context, exposes what is concealed in the above treatment. When 5 is uttered for example, several implications are intended, whose choice indicates how the proposition is to be processed. Although the truth of the proposition is accurately evaluated "in" the 1972 interval of time, to all intents and purposes, the interval of time is really unspecific or indeterminate or vague. It is not obvious from the truth-conditional analysis of 5 for example, that the house was built "in" the whole of the 1972 interval of time or "for" only seven months in that year or "at" regular intervals throughout 1972 etc. And it is clear that the hours when Max slept or was having lunch are irrelevant.

Similarly, when 4 is uttered, it does not follow that Max did not move away from the said location for a minute or two (to repair to the toilet). We may be splitting hairs, but it is true that the interpretation of the location or the referent for the VP "to be here for an hour" is dependent not only on its semantic content (i.e. linguistic factors) but on extra-linguistic factors as well. In other words, "gaps" exist in intervals or subintervals of time, but in an interval-type truth-conditional treatment of propositions, these are either ignored or subsumed (without proper justification or explanation) under the proposed interpretation. What is

even more interesting is the fact that, even the evaluation of these propositions "at" or "in" or "for" intervals of time, does not seem to resolve the problems.

Vlach gives other types of "gaps" in the interpretation of propositions.

6. E: Ralph taught for a year

Y: ChéLáfù wà-jígènyé cháká chímò

C: Láfù à-ná-phúnzitsà cháká chímódzì

The proposition expressed by 6 can be evaluated for its truth "at", "in" or "for" the year-long interval of time despite the fact that Ralph did not in fact teach during the three months summer vacation. We might hasten to add that this also depends on the semester or term system involved (i.e. encyclopaedic information): the VP "to teach for a year" conveys something different in a British system of education from what it might convey in an American one.

On these terms, 7 might be construed as true

7. E: Ralph attended the meetings for a year

Y: ChéLáfù wà-jáùlà'gá kù mǐsòngǎnò'kò cháká chímò

C: Láfù à-mà-pítá kù mǐsònkhanò'kò cháká chímódzì

despite the fact that the meetings were monthly or quarterly; but not held in December only of that year. Vlach continues: the attendance of four meetings out of five and not out of

fifty, is enough for the truth of the proposition in 7 to be decided upon <sup>3</sup>. In other words, there are propositions like 7 or 8:

8. E: Max has been selling cars for a week

Y: ChéMákìsì à-sùmísyè-jè màgálìmòtò nnùngò wósòpé

C: Mákìsì à-mà-gúlìtsà màgálìmòtò mlùngù wónsè

whose interval of time at which they might be true involves gaps in an uncontroversial way. The idea of selling cars does not entail that the selling takes place at every moment (instant) of the supposed interval of time involved. This is further justification for the temporal gaps which we claimed were characteristic of certain VPs when we interpret the utterances in which they appear (Cf. chapter three). As we indicated in chapter three entailment rule 25 (i.e. X is V -ing  $\longrightarrow$  has V -ed) fails to apply, as is evidenced by the cancellable nature of the truth of the first part of the proposition in 9 (i.e. 8 may be true even if no car has been sold, as is the case in 9).

9. Y: Chéíákìsì à-sù-mísyè-jè màgálìmòtò nnùngù  
wósòpé'wú nàmbó pàngálì jwásúmílè gálìmòtò àntá  
jìmd.

C: Mákìsì à-mà-gúlìtsà màgálìmòtò mlùngù wónsè'wù  
kòrà pàlìbé wágúlá gálìmòtò ndí ímódzì yómwé

E: Max has been selling cars for a week, but not  
a man has showed up to buy one.

Finally, there is Vlach's famous example in 10 and 11:

10: E: Is anyone sitting here?

Y: Pàná jwá-kú-támá àpà?

C: Pàlì á-kú-khálà àpà?

11. E: There is someone sitting here.

Y: Pàná múnù jwá-kú-támá àpà.

C: Pàlì múnthù á-kú-khálá àpà.

10 is a question asked for instance, of a person in the theatre whose partner is temporarily out during intermission. First, the person asking the question knows full well that the proposition is false "at" the interval of time when the question is posed, that is, the speaker can see the empty seat where nobody is sitting. The answer in 11 however, is to be interpreted as true "for" the interval of time in which the couple intended to stay in the theatre (e.g. from the start of the performance to the end). But it is false "at" or "for" the interval of time when the question is posed. There appears therefore to be a paradox here where 11 might be both true and false without inducing any contradiction.

The gaps problem is more common than this. Take a variant of Wilson's (1975: 105) sentence (our 12 below):

12. E: Susie read The Times yesterday.

Y: Àbìtí Súsè wà-wá-làsílé The Times lîsô.

C: Súzè à-níá-wélèngà The Times dzùlò.



the interpretation of the proposition expressed does not involve the assumption that SuSie read every page or every line or every advert of The Times nor does it suggest that the reading took every minute of the "yesterday" interval of time.

All these facts not only point to the limitations of current truth-conditional treatments of these utterances, but more seriously they suggest that it is right that we in fact, consider gaps as natural phenomena. The interval structure of certain VPs like "to read The Times" or "to watch a performance at the theatre" (obviously because of the influence of the NP) conversationally implicate temporal gaps. In actual use the gaps do not seem to depend on the category of the VPs either (perhaps the only exception is the group of VPs which we called "pure achievements" in chapter three, e.g. "explode" etc.).

#### 5.1.2 The semantic resolution of the gaps problem

We have indicated above that Vlach's three notions of truth or his search for a recursive definition of truth, goes some way towards recognizing (however implicitly) that gaps do exist in processing utterances. What this semantic treatment fails to indicate (and it is probably not intended to) is how the decision or the choice is made between the interpretation of a proposition like 11, "at" the interval

of time or "for" the interval of time in question i.e. that 10 is used to express what "Is this seat taken?" is normally meant to convey. In other words, it is not clear even after the provision of the three notions of truth, how the right choice of the "context" for the appropriate interpretation of 10 or 11 is made.

Another solution to the gaps problem was provided by Bennett (1981) who in fact, was the first linguist to term the problem the "gaps problem". Bennett explicitly indicated that gaps exist in the interpretation of utterances. To take account of these gaps in the processing of utterances, he proposed what he called "a union of connected intervals" of time. Bennett (p.20) specifically said "sentences are to be evaluated with respect to unions of intervals, and not just intervals. A union of intervals of time, of course, might not be a connected set of moments of time; there might be gaps." This is instantiated by the interpretation of a sentence like 13.

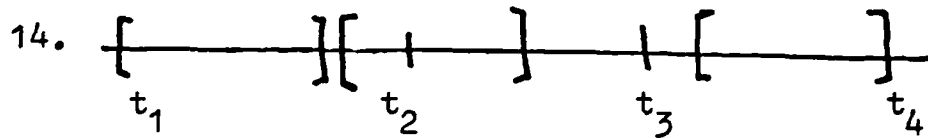
13. E: John built a house in one month last year.

Y: ChéJónì wà-táwílé nyumbà mwésí úmpépé mwáchěsò

C: Jónì à-ná-mángà nyumbá mwèzí úmódzì cháká cháthà.

Bennett graphically represented this sentence as 14 below, where among other things, gaps are accounted for in its

interpretation.



According to 14, 13 is interpreted thus: at  $t_1$  John begins building the house and at  $t_4$  the house is completed. But at  $t_2$  it was being built, though there was a gap at  $t_3$  when the house building temporarily stopped. We can see how the assumption of gaps for the VP (or the utterances it in part constitutes) naturally accounts for any potential paradoxes or ambiguities.

It is with these assumptions that Bennett gives the truth condition in 16 for the interpretation of 15:

15. E: Jones is leaving.

Y: ChéJónèsi à-kú-tyóká.

C: Jónèsi à-kù-chóká.

A typical Montague-like truth condition for 15 and other such event propositions is 16:

16. "Jones is leaving is true at a union  $\underline{I}$  of intervals of time if and only if  $\underline{I}$  is a moment of time, and there exists a union  $\underline{I}'$  of intervals of time such that  $\underline{I}'$  is an open, connected interval,  $\underline{I}$  is included in  $\underline{I}'$ , and Jones is in the extension of leave at  $\underline{I}'$ ."

(Bennett, 1981: 20).

Bennett himself however, indicated how the semantic rule in 16 fails to account for the important distinction between the interpretation of 15 as a progressive (or continuous) proposition from its habitual, or frequentative (or iterative) one. The point is illustrated better with activity VPs than with event VPs. As Bennett indicated 16 fails to account for the logical difference in the interpretation of sentences like "John is running", "John runs" and "John frequently runs". As we indicated in chapters three and four the problem can of course be resolved by claiming that morphological markers and temporal adverbials might unambiguously indicate the intended interpretation (i.e. habitual, frequentative or progressive). But Bennett (p.21) pointed out that on the non-reportive reading "John runs", "John is running", "John is frequently running", "John frequently runs" etc. are intuitively and logically similar. On this logical reading each of these sentences could be interpreted as expressing habituality, mere iteration or frequency, or progressiveness. The appropriate interpretation of these utterances (especially "John is running") without their linguistic contexts (i.e. adverbials etc.) can only be provided when appeal to the extra-linguistic context is made. The truth condition proposed by Bennett for the interpretation of the sentence "John is frequently running" clarifies this point.

17. "John is frequently running is true at interval of time I if and only if I is a moment of time, and there exists an interval of time I' (possibly constrained in some way by the context) such that I is included in I' but is not an endpoint for I', and John is in the extension of run with respect to a CLOSED interval of time MANY times each  $\alpha$  in I', where  $\alpha$  is some measure of length of time, like week, which is vague." (p.21 ).

What is of particular interest to us about 17 is how pragmatic factors appear to be incorporated in the semantic condition. The interpretation of the proposition expressed by the sentence is obviously vague as is witnessed by the phrase "possibly constrained in some way by the context". The "MANY times each  $\alpha$ " where  $\alpha$  refers to some indeterminate length of time, even the word "vague" itself, are incorporated in 17 - all in all indicating that there is something pragmatic that 17 purports to handle but fails to. We suggest that these are cases of vague temporal reference which can be resolved if the right kind of pragmatics is invoked (as it is in the next chapter). In other words, the gaps problem and the interpretation of the distinction between habitual, frequentative, progressive and other readings of sentences like those just provided,

manifest a problem for the Montague semantics treatment of aspect interpretation which might be better resolved within pragmatics.

## 5.2 The "Imperfective Paradox" and its semantic treatment

The limitation of the truth-conditional treatment of aspect (and tense) is also clearly seen in the analysis of the so-called imperfective paradox (Cf. Dowty, 1977, 1979 and Declerck, 1979b). The essence of the imperfective paradox as conceived of by Dowty is this: whereas the sentence in 18 with an activity VP in the "imperfective" present progressive,

18. Y: ChéJónì à-kwám̀b̀ulà  
C: Jónì à-k̀ù-jám̀b̀ulà  
E: John is drawing

entails its simple past in 19 (or its present perfect as we indicated

19. Y: ChéJónì wà-jám̀bwílè  
C: Jónì à-nájám̀b̀ulà  
E: John drew/has drawn

in chapter three), this entailment fails to apply with regard to the interpretation of sentences with accomplishment VPs or those achievement VPs which behave like them

(Cf. chapter three).

20. Y: ChéJónì à-jàmbwílè-jè líndàndà

C: Jónì à-mà-jàmbùlà dzìrà

E: John was drawing a circle/an egg

20 does not entail its simple past (or its present perfect) in 21:

21. Y: ChéJónì à-jàmbwílè líndàndà

C: Jónì wà-jàmbùlà dzìrà

E: John drew/has drawn a circle/an egg

On standard assumptions of the compositionality of meaning, we have a paradox.

Dowty's (1977:45) solution to this paradox, proposed in a typical "scrambling" of rather dated efforts of Generative Semantics and Montague Semantics can be traced thus. First, he proposes for sentences of this type the general logical form in 22:

22. [ PROG [  $\emptyset$  CAUSE [ BECOME  $\uparrow$  ] ] ]

22 is supposed to account for the fact which we noted in chapter three that accomplishment VPs denote the endpoint of the event which they describe, i.e. that the progressive form of the VP "to draw a circle" entails causing the circle to exist. 22 is an extended version of the logical form in

23 which implies that "to draw a circle" is to be interpreted as to cause the circle to exist.

23. [ $\phi$  CAUSE [ BECOME  $\gamma$  ]]

As we indicated in chapter three however, both 22 and 23 wrongly predict that the circle necessarily came to exist. As Dowty (1979:148) says, "to say that PROG  $\phi$  is true just in case  $\phi$  is true (at a superinterval) in all worlds having at least such-and-such degree of similarity to the actual world is to require that  $\phi$  always be true in <sup>the</sup> actual world itself whenever PROG  $\phi$  is true - just the condition we want to avoid to account for the imperfective paradox." Dowty therefore finds it necessary to introduce another notion in order to account for the paradox. This is "a new primitive function which assigns to each index, consisting of a world and an interval of time, a set of worlds which might be called inertia worlds - these are to be thought of as worlds which are exactly like the given world up to the time in question and which the future course of events after this time develops in ways most compatible with the past course of events" (Dowty, 1979: 148). On these terms, the new semantic rule for the interpretation of the progressive accomplishments is as given in 24 below:



24. "[PROG  $\phi$ ] is true at  $\langle \underline{I}, w \rangle$  iff for some interval  $\underline{I}'$  such that  $\underline{I} \subset \underline{I}'$  and  $\underline{I}$  is not a final subinterval for  $\underline{I}'$ , and for all  $w'$  such that  $w' \in \text{Inr}(\langle \underline{I}, w \rangle)$ ,  $\phi$  is true at  $\langle \underline{I}', w' \rangle$ ." (ibid: 149).

It is clear from Dowty's own words, that his invocation of "inertia worlds" represented in 24 as Inr in his truth condition, is meant to ensure that the existence of the circle in some future time in some context (or possible world) is predicted. This in itself is enough proof that 24 fails to indicate how the choice of the appropriate world in which the circle will be said to actually exist, is made. That is, "inertia worlds" notwithstanding, the speaker/hearer still has to choose one possible world amongst the many available in which the circle will be said to exist. 24 does not indicate how this choice might be made.

Vlach (1981) also attempts to provide a solution to the imperfective paradox. He notes that Dowty avoids the paradox by introducing the further notion of inertia worlds instead of solving it. He gives the example in our 25:

25. E: John was winning the race

Y: ChéJónì à-pùndílé-jè mjàhò'wò

C: Jónì à-mà-pámbáná mjàhò'wò

to show that the value "true" could be assigned to this sentence immediately John goes beyond the other competitors in the race but before he touches the finishing line. This fact is as curious as the so-called imperfective paradox. As we can deduce from 26:

26. E: John was winning the race when he fainted

Y: ChéJónì à-pùndílè-jè mjàhò'wò pl-wà-kómòkà-gá

C: Jónì à-mà-pámbáná mjàhò'wò páméné á-má-kómóká

John can truthfully be said to be in the process of winning the race at or for a given interval of time before the finishing line is reached although he might not actually win the race by eventually being the first to touch the line.

To resolve the problem Vlach introduces the operator PROCESS (which is meant to predict the future course of events almost as Dowty's inertia worlds were meant to). And the operator Proc  $[\phi]$  is defined as the process which leads to the truth of  $\phi$ , making the final formulation of the truth condition as in 27:

27. "If  $\phi$  is an accomplishment sentence, then

Proc  $[\phi]$  is that process P that leads to the truth of  $\phi$ , and such that if  $\phi$  is to

become true at  $\underline{I}$ , then P starts at the beginning

of  $\underline{I}$  and ends at the end of  $\underline{I}$ ". (Vlach, 1981:288)

We believe that even 27 is rather vague as it does not specify how the process which leads to the truth of  $\phi$  is arrived at or chosen. Even 27 then which might appear to be foolproof is not enough to indicate how the appropriate interpretation is chosen. We do not know whether in fact  $\phi$  will become true at I or not. Clearly given the appropriate context,  $\phi$  will be true and this brings us back to the role that pragmatics has in the assignment of the appropriate interpretation to vague propositions which the truth condition in 27 attempts but largely fails to account for.

### 5.3 A few problem cases for the truth-conditional treatment of tense

We have noted that Bennett (1981) concedes that on the nonreportive interpretation progressives and habituals could be said to have the same truth value. There are also other facets of tense which are said to be problems for the truth-conditional treatment of the category. In this final section we would like to mention only two important ones.

#### 5.3.1 The simple past versus the present perfect interpretation

The sentences in 28 and 29 are traditionally said to have the same truth condition in a classical tense logic.<sup>4</sup>

28. Y: Chémwàlímú á-témángwìlè lùkōngòlò

C: Àphùnzìtsì à-thyòlà mwèndò

E: The teacher has broken a leg

29. Y: Chémwàlímú wà-témàngwilé lùkóngòlò

C: Àphùnzìtsì à-ná-thyòlà mwèndò

E: The teacher broke a leg

First, as we noted in chapter four, there is a difference between the English examples in 28 and 29 and their Yao and Chewa counterparts. The English example in 28 is generally said to co-occur with such temporal adverbials as "today" or "already" and all those adverbials which refer to time which is close to the speech of the event. Temporal adverbials which signal time which is rather distant from the speech time, such as "yesterday", "last week", and "a minute ago" etc. do not generally occur with the English 28, except of course in special contexts, such as coordination.

This restriction does not apply to Yao and Chewa however. 28 takes these adverbials without inducing ungrammaticality in the sentences in question. As we indicated in chapter four the explanation is to be found in what has been referred to as "current relevance" (Cf. McCoard, 1978 and others). In Yao and Chewa when we say:

30. Y: ChéMwàlímú á-témángwílè lùkóngòlà mwáchěsò

C: Àphùnzìtsì à-thyòlà mwèndò chāká cháthà

E: The teacher broke a leg only (just) last year

we are thinking of the freshness of the event, i.e. we are bringing the event as it were, closer to the speech time. Otherwise, the perfect is interpreted in the same way in the three languages. 29 on the other hand, signals a distant past or past which is more removed from the speech time of the utterances, even before appeal to equivalent distant adverbials is made. Clearly, for both Yao and Chewá the morphological markers (i.e. the wa + V + ile and -na- respectively) are sufficient to indicate the distance between the time of the event and the speech time of the utterance. This is probably why the occurrence of the VP with past time markers and temporal adverbials which indicate proximity to the speech time might appear unacceptable, though in fact, it is grammatical.

From a truth-conditional point of view however, whether the event is far away from the speech time of the utterance or not is not important, for the truth of both 28 and 29 is evaluated at some past time (that is, time anterior to the speech time). Truth-conditional semantics is ill-equipped to deal with the relative distance of the event time from the speech time of the utterance.

5.3.2 The simple future and the progressive future interpretation

The final problem we would like merely to indicate, which the truth-conditional treatment of tense appears to fail to account for (or at any rate, which there is no conclusive evidence that truth-conditional semantics is able to handle without controversy) is the distinction between the so-called "simple futurate" versus "progressive futurate". We do not intend to dwell too long on this point as it has already been touched on in chapter four. We would just like to suggest that perhaps Prince (1982), Smith, C.S. (1981b, 1982) and Goldsmith & Woisetschlaeger (1982) as well as Dowty (1979) of course, are representative of the various strands. The problem can be illustrated by Dowty's (1979:154-155) examples:

31. E: John is leaving town tomorrow

Y: ChéJónì à-kū-tyóká m'táwùní málǎwì

C: Jónì à-kù-chóká mùmzìndà mǎwà

32. E: John will leave town tomorrow

Y: ChéJónì tà-chí-tyòkà mtáwùní málǎwì

C: Jónì à-dzá-chòkà mùtáùní mǎwà

33. E: John leaves town tomorrow

Y: ChéJónì tá-tyòché mtáwùní málǎwì

C: Jónì á-chòkà mùtáùní mǎwà

The problem about the truth-conditional treatment of 31 - 33 appears to concern the distinction in the truth conditions between 32 and 33 on the one hand, and between the two and 31 on the other. According to Dowty apparently both the progressive futurate and the simple futurate convey the notion of the scheduling of the event which they describe. But simple futurates are evaluated for their truth at all future histories whereas, as we have seen with the invocation of the "inertia worlds" the progressive futurates must be true only in some future (inertia) world. As Prince (1982:453) indicates the difference between the truth conditions of the simple futurates and the progressive futurates appears to be one of degree, the truth of a simple futurate proposition being more certain than that of the progressive futurate. This in effect, is reminiscent of what we have just noted in 5.3.1 where the truth of the simple past proposition is distinct from that of the present perfect by the distance (degree) that the event is from the speech time of the utterance. The other proposal (which we will not bother to discuss but which is based on Goldsmith & Woisetschlaeger's (1982) notion that simple futurates entail that the knowledge of the future event is structured in a way that that of the future event of the progressive futurate is not), is provided by Prince (1982) herself.

But even Prince ends on a note which is of interest to us and which we would like to conclude with. She says that even in her proposal she has not indicated

"the possible interaction of the semantics of SFs (simple futurates) (or of PFs, Progressive futurates, for that matter) with pragmatics. Once this interaction is understood, part of what has here been attributed to the semantics of SFs may turn out to be more elegantly handled by specific conventional implicatures and/or by general pragmatic principles." (p.463)

#### 5.4 Conclusion

With these remarks in mind, there is no need to repeat the limitations of the truth-conditional (or other semantic) treatment of aspect and tense. We might just conclude with the words that introduce the pragmatic framework which we adopt in the next chapter to resolve these issues:

"Linguistic rules alone rarely uniquely determine the propositional content of an utterance: almost invariably there are ambiguities to be resolved, choices among possible references to be made, and implicit or ellipsed material to be reconstructed.



Intuitively, the hearer or reader of an utterance has a simple method for resolving these indeterminacies: where there is a choice, he chooses the interpretation on which the utterance will be most relevant. However, though undoubtedly true, this is not particularly helpful as long as we have no idea what relevance is. An explicit account of relevance would shed some much needed light on the processes by which disambiguation, reference assignment and so on are achieved."

Sperber & Wilson (MS:2) "On Defining 'Relevance'"

FOOTNOTES TO CHAPTER FIVE

1. For a more general treatment of the limitations of truth-conditional semantics generally (i.e. not specifically concerned with the interpretation of tense and aspect) see Wilson (1975).
2. We accept that the semantic interpretation of utterances is a different enterprise from its pragmatic interpretation; and following Austin (1962) we believe that the truth of a given proposition can also best be decided upon by appeal to context (or the choice of other pragmatic factors).
3. This in itself is an indication that the assignment of the truth value of a given proposition is largely a subjective matter when we consider utterances in contexts.
4. Tichý (1980) is the only example we have come across where an attempt has been made to treat the difference between the interpretation of the perfect and that of the simple past within truth-conditional semantics. Whether it is convincing or not will probably depend on one's commitment to a formal treatment of such phenomena. Tichý is probably over-stretching a semantic framework which cannot handle cases of the construal of indeterminate utterances.

## CHAPTER SIX

### TOWARDS A PRAGMATIC INTERPRETATION OF INDETERMINATE UTTERANCES FOR ASPECT AND TENSE

#### 6.0 Introduction

In this chapter we sketch how temporally vague utterances ought to be treated within a pragmatic framework. Specifically, we show that the problems which we indicated in the last chapter: the "gaps", the imperfective paradox, the interpretation of the simple past and the present perfect, all these and other related problems ought to be treated pragmatically. We have indicated how the truth conditions proposed for the interpretation of these issues attempt and largely fail to account for the assignment of the appropriate temporal reference. In certain cases the literature mentions implicitly or explicitly that pragmatic factors of context or subjective choice operate in the interpretation of these temporally vague utterances. In some cases (Cf. McCoard, 1978) pragmatic principles such as the ill-defined "current relevance" are invoked to indicate how the appropriate interpretation of the "perfect" for example, is arrived at. In other cases (e.g. Prince, 1982, in the quotation in the last chapter), the role of pragmatics in the interpretation of these utterances is merely mentioned without being developed. In yet other cases, "context" or "subjective choice" are mentioned as being the notions

which resolve the temporal indeterminacy of such utterances; but no rigorous definition of context or subjective choice is indicated to show how the process of disambiguation is achieved.

In other words, the role that pragmatics plays in the interpretation of temporally vague utterances is not in question. What tends to be questioned is the type of "pragmatics" which is appropriate for which interpretative or descriptive model. These generally divide into "formal" (Cf. Ejerhed, 1981; Kuhn, 1979, for the interpretation of ambiguity for tense, for example) and the Gricean type often called "informal" pragmatics. The latter also divides into "formalized" (Cf. Gazdar, 1979) and "informal" and in part cognitive based pragmatics (Cf. Sperber & Wilson, 1982, and forthcoming). The rivalry as to what constitutes the "appropriate" pragmatics is apparent, though this chapter does not deal with that issue. It is worth noting however, that labelling one framework "informal" does not necessarily reduce its descriptive or interpretative adequacy nor does it make the framework less rigorous as Gazdar, (1979, chapter 1) seems to believe about the Gricean approach to pragmatics which is not as formalized as his own.

This chapter first traces the importance of the Gricean type of informal pragmatics, as extended by Sperber & Wilson (ibid), to handle the interpretation of

indeterminate or vague utterances. It then takes a few issues in the interpretation of the vague utterances we saw in the last chapter and indicates how the Sperber & Wilson "principle of relevance" appears to resolve the problems. However controversial the actual application of this principle might be to the treatment of aspect and tense, we have for the first time a pragmatic framework which seriously defines the "context" and the "principle of relevance", both of which are uncontroversially taken to be the notions which help resolve the vagueness of utterances.

#### 6.1 Pragmatics in syntactic and semantic description

Before we launch ourselves, it might be a good idea to make a few remarks to clear a confusion which is often noted in the literature. Green (1981), talking about the role that pragmatics plays in the formulation of syntactic rules within the generative grammar of the last three decades, accuses these linguists of not acknowledging this important role. She claims that almost every syntactic rule proposed in that time has had a pragmatic constraint or condition or function etc. curtailing it. This odd (or rather misguided) assumption might appear plausible where the formulation of recent syntactic theories might be concerned; (Cf. Bresnan, (ed), 1982; Jacobson & Pullum, (eds), 1982 etc.) where these essentially "surface structure" characterisations of syntax might appear to be

influenced by pragmatic factors. Bates et al. (1982) for example, discuss functional constraints on word order processing across English and Italian emphasising the role of pragmatic factors in the description of this one facet of syntax : word order. Green herself continues (p.30):

This means that the problem of the proper role of pragmatics with respect to syntactic description cannot be dismissed as merely an interesting puzzle involving a few insignificant unrelated and unrestricted phenomena. The involvement of pragmatics (in syntax) is pervasive.

When we discuss the pragmatics of aspect and tense below, we would like to dissociate ourselves from these misleading assumptions. That is, we are not dealing with pragmatic constraints on rules, but with the pragmatic interpretation of utterances which semantic rules fail to account for. Even the model-theoretic system for the interpretation of utterances concedes that "the truth conditions of sentences in natural language are partly determined by pragmatic factors" (Cf. Sgall, 1980:234), but these have tended to be, as noted earlier, the "context" and the speaker/hearer's subjective judgement or choice of the relevant interpretation of an utterance in a set of alternative interpretations. This has nothing to do with

so-called pragmatic constraints on rules per se.<sup>1</sup>

The root of the confusion is probably that some linguists have tended to see pragmatics as a further component of the grammar and hence able to interact directly with other components. We see pragmatics rather as a set of principles - linguistic, logical and encyclopaedic - brought to bear on the interpretation of utterances specified (in part) by the grammar.

#### 6.1.1 Choosing a relevant pragmatic framework

The literature is replete with observations that certain vague utterance be interpreted pragmatically without indicating what pragmatic principles are involved. This is perhaps because pragmatic theories have tended to concern utterance-comprehension rather than utterance-interpretation as Sperber & Wilson, (1982) note. Also as they explain (1981: 281), "it is only in the last ten years or so that pragmatics has become an institutionalized research field, with its own textbooks, international conferences and journals. Its contributors are based in a variety of disciplines, including psychology and psycholinguistics, linguistics, AI and sociolinguistics. The field is so new and so diverse that no consensus on the basic concepts and theories, or even on overall goals and research tasks, has yet emerged."

The situation is obviously changing now. Yet the choice of the pragmatic framework relevant to the

interpretation of vague utterances even among the so-called "informal" ones is not easy. Any pragmatic theory based on the work of Grice (1968, 1975, 1978 etc.) should be capable of handling the problems of temporal vagueness of utterances. On these terms, the "speech acts" theories as developed by Searle (1969), Searle et al, (eds) (1980) and others are potentially useful. Also along these lines is Clark's (1977) system of "bridging" which is not only Gricean based but also goes some way to indicate how speakers/hearers constantly build "bridges" across potentially ambiguous, vague, ungrammatical or sometimes downright incomprehensible propositions in utterance processing.

But Clark's "bridges" are presented as a package for general communication. The framework is not specifically intended or claimed to handle disambiguation, for instance. The bridges are in the form of a list of tasks that a typical hearer has at his disposal in the process of utterance comprehension. There is no indication of the structure of the context for example, or the nature of the inferences one draws from the context or how one chooses one among the many alternative interpretations of an indeterminate utterance. And again reiterating Sperber & Wilson (1982), Clark's (especially Clark & Marshall, 1981: and Clark & Carlson, 1982a, b) is essentially an utterance-comprehension model of pragmatics which seems ill-equipped



for the solution of problems which an utterance-interpretation model ought to handle better. This is clear from Clark's own words (1977:413) on what he takes to constitute utterance-comprehension in natural language:

The listener takes it as a necessary part of understanding an utterance in context that he be able to identify the intended referents ... for all referring expressions ... this requires the listener to bridge, to construct certain implicatures, and so he takes these implicatures too as a necessary part of comprehension. In short, he considers implicatures to be intrinsic to the intended message, since without them the utterance could not refer.

How the intended implicatures are identified or chosen however, is not indicated in a principled way. As Sperber & Wilson (1982) sceptically observe about this use of the strict Gricean programme of pragmatics, the goal of pragmatics is to describe utterance-comprehension. Similarly, they argue, for Clark comprehension is the recovery by the hearer of a set of propositions intended by the speakers.

Sperber & Wilson themselves however, do not reject Clark's pragmatics outright. For them utterance-comprehension is only one facet of the overall system of

utterance-interpretation (Cf. Sperber & Wilson, 1982: 128-130). Their own definition of what constitutes pragmatics exemplifies this position (Cf. Sperber & Wilson, 1981b: 281):

The main aim of pragmatic theory is to provide an explicit account of how human beings interpret utterances. To do this, one would have to say how disambiguation is achieved; how reference is assigned; how sentence fragments are interpreted; how ungrammatical utterances are dealt with; what role presuppositional phenomena play; how implicatures (intended references) are worked out; how contextual and encyclopaedic knowledge is brought to bear; and so on. Any organized set of answers to these and similar questions would constitute a pragmatic theory on some level of adequacy.

Having indicated that the problems of the interpretation of aspect and tense which we dealt with in the last chapter concern the interpretation of essentially temporally vague or indeterminate utterances, the choice of the Sperber & Wilson framework therefore comes as a natural conclusion. It is to a brief summary of how they define "context" and the "principle of relevance" both of which are important notions in the resolution of the problems at hand, that we must now turn.

### 6.1.2 "Context" and the "Principle of relevance"

The pragmatic framework which we adopt below is inferential in nature.<sup>2</sup> It deals with the interpretation of utterances in a context. Sperber & Wilson (1980) define "context" as a set of propositions which may be derived from both verbal and non-verbal sources. Ideally it can be of any size, i.e. there can be as many propositions in a given context as there are numbers to describe or count them (though the size is normally constrained by limitations of memory). The interpretation or the processing of a proposition expressed by an utterance in context involves, therefore, the extraction of information from a set of propositions which make up the context.

The point is illustrated thus:

1. Jackson has just bought a Rolls Royce, but  
his wife refuses to drive in expensive cars.
2. The Roll\$ Royce is an expensive car.
3. Jackson's wife refuses to drive in his Rolls  
Royce.

In order to interpret the proposition expressed by 1, the contextual assumption in 2 would have to be supplied or known. The union of the proposition in 1 with the background contextual proposition in 2 gets the output in 3.

That is, given the contextual proposition in 2, 1 conveys 3. This type of inference is called "context-invariant" in the sense that there is a fixed (an invariant) context 2 from which a proposition like 3 might be inferred. But there are also "context-dependent" implications which are defined as the set of propositions logically implied by the union of the proposition being processed and the set of propositions of which the context is made. These are called "contextual implications" of a given proposition P in the context  $C_1 \dots C_n$ . The examples used to illustrate the point are as follows:

4. (a) If the chairman resigns, Jackson will take over his duties.

(b) If Jackson takes over the chairman's duties, the company will go bankrupt.

If 4(a) and (b) are taken to be a set of two propositions which make up a context, and we add 5 to this context;

5. The Chairman has resigned.

6 and 7 might be obtained as the "contextual implications".

6. Jackson will take over the Chairman's duties.

7. The company will go bankrupt.

In other words, the claim is that the contextual

implications in 6 and 7 can be inferred when the set of propositions which constitutes the context (i.e. 4(a) and (b)) and the proposition 5 are processed together and not each singly. When 5 has contextual implications 6 and 7 then 5 is said to be "relevant" in the context 4. Hence the interpretation of a proposition in some context involves the inference of contextual implications of the proposition in the context (set of propositions) and the establishment of the contextual implications in turn is a necessary and sufficient condition for the "relevance" of the proposition in the "context". Where there might be two or more possible interpretations of one proposition in a context, the "choice" of the appropriate interpretation involves the discovery of the proposition which has "maximal" contextual implications in that context.

The "principle of relevance" then is defined by Sperber & Wilson (1982:75) thus: "The speaker tries to express the proposition which is the most relevant one possible to the hearer." On these terms, the interpretation of an utterance with several meanings in one context involves the "choice" of the most relevant proposition in the "context(s)". This proposition will also tend to have the characteristic of being the most easily accessible (i.e. of being processed with the maximum of ease). Both the maximal relevance of a proposition in a context or contexts and its minimum difficulty in processing contribute to the

choice of the appropriate interpretation of a vague, ambiguous or indeterminate utterance. The Sperber & Wilson framework then, however controversial it might be (Cf. Gazdar and Good, 1982), clearly indicates how speakers and hearers might proceed to disambiguate or assign the appropriate reference to a potentially vague utterance for example. It is to an exploitation of this framework for the interpretation of some of the issues we noted in chapter five, that we must now turn. <sup>3</sup>

## 6.2 Towards a pragmatic treatment of temporally vague utterances

### 6.2.1 The imperfective paradox

We have seen that the essence of the imperfective paradox as demonstrated by Dowty and others is that whereas the entailment rule "X is/was V-ing"  $\longrightarrow$  "X has V-ed/V-ed" applies for progressive "activity propositions" and that the truth of such a "progressive proposition" entails the truth of its "perfect or simple past" one, of which it is a part; this interpretation does not necessarily apply to "accomplishment or achievement progressive propositions". According to the standard principle of compositionality of meaning we have therefore a paradox.

Another way of presenting the paradox in part, is to claim for example, that a past progressive accomplishment

or achievement proposition is vague or has two (or more) possible interpretations which can only be decided if we know the context(s) in which it appears. Utterance 8 for instance,

8. E: Wajabu was drawing a circle yesterday

Y: Chéwájàbù à-jàmbwílè-jè líndàndà lìsò

C: wájàbù à-mà-jàmbùlà dzìrà dzùlò

can be interpreted as either that the circle was completed or not, according to the context. 8 could also be taken to mean that Wajabu was going to draw a circle in some time posterior to speech time.<sup>4</sup> Using the Sperber & Wilson framework how might this sentence be assigned its interpretation according to the context?

We will suppose first that the following is one of the contexts in which 8 is to be interpreted:

9. Context<sub>1</sub>: (a) We know that Wajabu intended to draw a circle .

(b) We actually saw him drawing the circle yesterday.

(c) He completed drawing the circle.

Context<sub>2</sub>: (a) We know that Wajabu intended to draw a circle.

(b) He started drawing the circle.

(c) But someone hit him on the head and Wajabu fainted before he could complete the circle.

Supposing the two interpretations of 8 are in fact 10 and 11 below (i.e. 8 is vague between these two readings):

10. Wajabu has drawn/drew the circle.

11. Wajabu did not draw a circle; he only drew part of it.

According to the framework we have adopted, to provide the appropriate interpretation of 8 (i.e. the choice between 10 and 11), we must link 8 up logically to one of the contexts (i.e.  $9 C_1$  or  $9 C_2$ ) and decide on the basis of logical inference, which of the two propositions 10 or 11 is deducible from the union of 8 in the context  $C_1$  or  $C_2$ .

On these terms, given the context  $9 C_1$ , 8 will be said to convey 10. And given  $9 C_2$ , 8 will convey 11. These are the contexts in which 8 is relevant or has the most contextual implications. The "deductive device" (Cf. Sperber & Wilson, *ibid*) employed to arrive at these contextual implications will be less complicated in each of the cases where one proposition is more relevant in one context than another in the same context. That is processing 8 in the context  $9 C_1$  to arrive at 11 will be impossible (i.e. going through a process of logical inference).<sup>5</sup> This then is how the imperfective paradox might be resolved more elegantly pragmatically than semantically.



### 6.2.2 The gaps problem

Suppose we have the following context  $12 C_3$ :

- $12C_3$ . (a) A is sitting in the theatre.  
(b) A's partner B, has gone to the toilet.  
(c) It is break time but A and B are expected  
to watch the whole show.  
(d) There is an empty seat where B was sitting.  
(e) C has come during this intermission into  
the theatre.

Suppose that C walks to A and the following short exchange ensues:

13. (i) C to A: Is anyone sitting here?  
(ii) A to C: Yes.

We saw in the last chapter that there is a problem in the interpretation of 13 (ii). It is truth-conditionally indeterminate between the falsity of the proposition "at" the interval of time when the question is posed (that is, when the seat is clearly empty) and its truth "for" the interval of time when A and B intended to watch the show (that is, from beginning to finish). Clearly the interpretation of 13 (ii) by C which might take the form of 14

14. The seat is taken (although no-one is sitting on it right now).

is made after C has gone through a process of inference of 14 from 13 (ii) treated in the context 12  $C_3$  (which he has to supply). Given the context 12  $C_3$ , it is surely inappropriate to assume that 13 (ii) contextually implicates something other than 14. That is, in the context 12  $C_3$ , 13 (ii) must be taken to mean 14.

Similarly, we can see how the hearer assigns the appropriate interpretation to utterance 15:

15. Y: ChéWájàbù à-sùmísyè-jè màgálìmòtò nnùngù wósòpé  
C: Wájàbù à-mà-gúlítsà màgálìmòtò mlùngù wónsè  
E: Wajabu was/has been selling cars the whole week

Given a context such as the following for example:

- 16  $C_4$ . (a) We saw Wajabu putting up posters for the sale of cars that week.  
(b) There were ten cars which we know Wajabu wanted to sell.  
(c) But the cars were priced too high, a fact which was pointed out by almost every prospective buyer.  
(d) After the week in which Wajabu set out to sell the cars, there were still ten cars unsold.

We can safely assume that 17 rather than 18 is the more relevant proposition for the appropriate interpretation of 15.

17. Nobody bought a car from Wajabu that week.

18. Wajabu sold a few cars that week.

The hearer goes through the same process of finding the maximally relevant contextual implication for the interpretation of 15 in the context 16  $C_4$  and discovers that the contextual implication in 17 is the appropriate interpretation of 15.

Clearly, if we changed the context to 19:

- 19  $C_5$ . (a) We saw Wajabu putting up posters for the sale of cars that week.
- (b) There were ten cars which we know Wajabu wanted to sell.
- (c) Wajabu priced the cars rather high.
- (d) Only two cars were sold.
- (e) After the week set out to sell the cars, there were eight cars unsold.

18 will be judged to be the more relevant proposition for the interpretation of 15 in this new context 19  $C_5$ . Given two different contexts therefore and one proposition 15 which is relevant to both contexts, two different contextual implications can be deduced for the appropriate interpretation of the proposition.

### 6.2.3 The simple past and perfect interpretation

In chapter four we argued that there is no

ungrammaticality or unacceptability in Yao and Chewa induced by the co-occurrence of the perfect and adverbials like yesterday, last year etc. We demonstrated that when this happens the "perfect meaning" of the utterance is not lost. The utterance is therefore interpreted as if the event described happened close to the speech time.

20. Y: ChéWájàbù à-wìlé cháká chíchímásílé'chì.

C: Wájàbù wà-fà chàká cháthà'chì.

E: ?Wajabu has died only last year.

21. Y: ChéWájàbù wá-wìlé mwáchěsò.

C: Wájàbù à-ná-fà cháká cháthà.

E: Wajabu died last year.

Now take the two utterances in 20 and 21. Given the context in 22 C<sub>6</sub>,

22 C<sub>6</sub> (a) Wajabu died last year

(b) His death was too sudden to be easily forgotten

(c) A and B are talking about Wajabu's death

(d) They both remember his death with freshness

(e) They are still concerned about the death

the union of the "perfect" proposition in 20 with 22 C<sub>6</sub> might induce the contextual implication in 23:

23. Wajabu's death is described as if it has just happened.

Clearly 21 is not relevant to the context 22 C<sub>6</sub> because it is a matter-of-fact way of describing Wajabu's death. For the appropriate interpretation of 21 a context like 24 C<sub>7</sub> might be needed.

- 24 C<sub>7</sub>. (a) Wajabu died last year.
- (b) A and B are talking about his death.
  - (c) They remember the death like any other death.
  - (d) There is nothing that is different about the death.
  - (e) They are not particularly interested in the death.

Given the context 24 C<sub>7</sub>, the processing of 20 in this context will definitely be a tough job to perform. It is 21 which is the more relevant proposition in the context 24 C<sub>7</sub>; it has more contextual implications in that context and it will also be processed with the maximum of ease.

In other words, although truth-conditionally 20 and 21 are similar, their difference can easily be detected when treated in such contexts as 22 C<sub>6</sub> or 24 C<sub>7</sub>. And the fact that the perfect form of the Yao and Chewa utterances co-occurs easily with temporal adverbials like "last year" which denote time more removed from the speech time of the utterance whereas in English this situation does not hold,

only shows that such temporal adverbials can be used in Yao and Chewa to describe the "theoretical" closeness of the event to the speech time of the utterance when in English this does not happen.<sup>6</sup>

#### 6.2.4 The interpretation of future time

We noted in chapter four that the treatment of tense according to the Reichenbachian framework has been said to be inadequate in several respects. Wachtel (1982: 336) notes five instances where this model appears to fail to account for the appropriate interpretation of utterances. The issue concerns the interpretation of utterances such as those in 25 and 26 below:

25. E: John comes home tomorrow

Y: ChéJónì à-kwísá kúmùsì màlǎwì

C: Jónì à-kù-fíká kùmùdzì mǎwà

26. E: John will come home tomorrow

Y: ChéJónì tà-chí-ìkà kúmùsì màlǎwì

C: Jónì à-dzá-fíkà kùmùdzì mǎwà

Truth-conditionally, these sentences are similar: they refer to the future time in which the event is expected to take place. Dowty (1979) sees their difference lying in

in the notion of "inertia worlds" which he introduces (Cf. the last chapter). Smith C.S. (1981, 1982) sees their difference lying in aspect. It is important to note in fact, that both Dowty and Smith C.S. are generally concerned about the interpretation of three utterances all of which refer to the future time. The third one is the so-called "Progressive futurate" in 27:

27. E: John is coming home tomorrow

Y: ChéJónì à-kwísá kùmùsì màlǎwì

C: Jónì à-kù-fíká kùmùdzì mǎwà

The truth conditions that Dowty and Smith C.S. provide then (for the interpretation of 25 and 26 on the one hand and 27 on the other ) could also be reflected within the Reichenbachian framework by indicating that 27 has progressive aspect and 25 and 26 are neutral to such interpretation. But both the truth-conditional treatment and the Reichenbachian one fail to indicate the difference between 25 and 26.

According to Reichenbach (1947) both 25 and 26 have the structure  $S - R, E$ . That is, the "planning," "scheduling" or "structuring" of the event apparently assumed by Huddleston (1969); Goldsmith & Woisetschlaeger (1982) and others for 25 and its neutrality for 26 are

not accounted for by the Reichenbachian framework.

We suggest that the difference between 25 and 26 (or even lack of it), might be discovered during the interpretation of the utterances in a context. But we would have to provide a very subtle context indeed, in order to see the difference. If we set up a context such as 28  $C_8$  for example,

- 28  $C_8$  . (a) We know that John is expected tomorrow  
(b) People at home have made preparations  
for his arrival.  
(c) We know he has bought the air ticket  
(d) The flight has not been cancelled  
(e) John's papers are in order.

we suspect that both 25 and 26 might have similar contextual implications and therefore should be equally relevant in the context 28  $C_8$ . Ideally, if the claim that 25 indicates the scheduling of the event (or John's coming home), then 29 should be the relevant contextual implication of 25 in the context 28  $C_8$ .

29. It is relatively certain that John will be  
home tomorrow.

But common sense tells us that this could easily be the contextual implication for 26 as well processed in the



context 28  $C_8$ . In other words, although this appears to be one of those cases where the principle of relevance seems to fail to apply, we should probably take this as a challenge to cause us to find subtler contextual implications in order to discover the difference which is claimed to exist in the utterances in question. On these terms, we might even use the principle of relevance to disprove certain so-called semantic problems. The fault may not be with the pragmatic framework, but with the type of semantics we adopt.

### 6.3 Conclusions

What we intended to do in this chapter is indicate that now that pragmatics is developing as an utterance-interpretation discipline, we can be more specific about what we mean when we say that certain vague utterances can best be interpreted "in context". The Sperber & Wilson framework which we have in part exploited here (however inadequately), does at least indicate how the "choice" of the appropriate interpretation amongst several possible ones in a context(which is more clearly defined), is not in fact arbitrarily made. Given the notion of "context" as provided, and of contextual implications deducible from the union of the indeterminate utterance and the context, we can easily show how the principle of relevance operates during utterance-interpretation.

#### 6.4 General Conclusion

This thesis has demonstrated that the interpretation of utterances generally depends on morpho-syntactic and semantic factors; but that in addition to such grammatical parameters, it is also imperative to take cognisance of pragmatic factors too. The Sperber & Wilson theory of pragmatics finally makes it possible to start fleshing out the syntactic skeleton with some rigour.

FOOTNOTES TO CHAPTER SIX

1. In this respect even the influence of social context in utterance interpretation advocated recently by Dore & McDermott (1982) is more relevant to our task here than Green's statement. Dore & McDermott (p.396) conclude, "It is true that conversationalists hear quite extraordinary statements (e.g. paradoxes) in quite ordinary ways; at the same time, ordinary statements can be heard in quite extraordinary ways ...".
2. What follows is a summary of the recent work on pragmatics by Sperber & Wilson. Most of the summary is in fact a copy of their phraseology. I am deeply indebted to them for letting me use their work so freely. Any inappropriate application of their theory is, of course, my own fault.
3. See Smith N.V. (1981) for the first use of this principle in the interpretation of tense, which we amplify in this chapter.
4. Note that this utterance can be interpreted pragmatically as we might interpret 62 in chapter three, i.e. the solution being provided for the interpretation of this sentence also applies for the interpretation of sentence 62 in chapter three.

5. We will not bother to indicate the system of inference adopted by Sperber & Wilson here. We suggest that readers refer to their work where the "deductive device" is indicated. Generally, it is no different from any other logical device of inference, which readers might be aware of.

6. Obviously where two utterances of different morphological structure have similar contextual implications in similar contexts, this framework will fail to handle the situation, unless there are clear differences of length and complexity which will make one more easily processable than the other.

BIBLIOGRAPHY

- Abraham, W. (1980) "The Synchronic and Diachronic Semantics of German Temporal noch and Schon, with aspects of English still, yet, and already", Studies in Language, 4.1:3-24
- Allwood, J. et al. (1977) Logic in Linguistics. Cambridge University Press.
- Akmajian, A. and Wasow, T. (1975) "The Constituent Structure of VP and AUX and the position of the verb BE", Linguistic Analysis, 1: 205-245
- Akmajian, A., Steele, A. and Wasow, T. (1979) "The Category AUX in universal grammar". Linguistic Inquiry, 10: 1-64
- Anderson, J.M. (1972) "The ghost of times past", Foundations of Language 9, 481-491
- Anderson, J.M. (1973) An Essay Concerning Aspect, The Hague. Mouton.
- Åqvist, L. (1976) "Formal Semantics of verb tenses as analysed by Reichenbach" in Teun A van Dijk (ed)
- Åqvist, L. (1978) "A System of Chronological Tense Logic", in Guenther and Schmidt (eds)
- Åqvist, L. and Guenther, F. (1978) "Fundamentals of a theory of verb aspect and events within a setting of an improved tense logic", in Guenther and Rohrer (eds)

- Austin, J.L. (1961) Philosophical Papers,  
Oxford University Press.
- Austin, J.L. (1962) How to Do Things with Words,  
Oxford University Press.
- Bach, E. (1980) "Tenses and Aspects as Functions  
on Verb-Phrases" in C. Rohrer (ed)
- Bach, E. (1981) "On Time, Tense, and Aspect: An  
Essay in English Metaphysics" in P. Cole  
(ed)
- Bache, C. (1982) "Aspect and Aktionsart: towards a  
Semantic distinction".  
Journal of Linguistics, 18,1: 57-72
- Barense, D.D. (1980) "Tense Structure and reference:  
A first-order non-modal analysis",  
I.U.L.C., Bloomington.
- Bartsch, R. (1976) The Grammar of Adverbials,  
Amsterdam: North Holland.
- Bates, E., et al. (1982) "Functional Constraints on  
sentence processing: a cross-linguistic  
study" Cognition, 11: 245-299.
- Bauerle, R. (1979) "Tense logics and natural languages",  
Synthese, 40: 225-230.
- Bauerle, R. Egli, U. Stechow, A, von (eds.) (1979),  
Semantics from different points of view,  
Springer-Verlag, Berlin II.

- Behre, F. ed. (1962) Contributions to English Syntax and Philology, Gothenburg Studies in English, 14: 1-20
- Belletti, A., Brandi, L. and Rizzi, L. eds., (1981) Theory of Markedness in Generative Grammar, Scuola Normale Superiore Pisa.
- Bennett, D. (1975) Spatial and temporal uses of English prepositions, Longman, London.
- Bennett, M. and Partee, B. (1978) "Towards the logic of tense and aspect in English", I.U.L.C., Bloomington.
- Bennett, M. (1981) "Of Tense and Aspect: one analysis" in Tedeschi & Zaenen, eds.
- Bever, T., Katz, J.J., Langendoen, D.T., eds. (1977) An Integrated Theory of Linguistic Abilities, Harvester Press.
- Binnick, R.I. (1971) "Will and Be Going to", Chicago Linguistic Society, 7: 40-45
- Binnick, R.I. (1972) "Will and Be Going To II", Chicago Linguistic Society, 8: 3-9
- Binnick, R.I. (1976) "How Aspect Languages Get Tense", Papers from the Parasession on Diachronic Syntax: Chicago Linguistic Society, 40-49.
- Boertien, H.S. (1979) "Toward a unified semantics of aspectual verbs with to and ing complements", Chicago Linguistic Society, 15: 42-52.

- Bolinger, D. (1977) Meaning and Form, London, Longman.
- Borg, A. (1980) "An Aspectual distinction in verbs and nouns in Maltese" Archivum Linguisticum, XI, new series 2: 107-117
- Boyd, J. and Thorne, J.P. (1969) "The Semantics of modal verbs", Journal of Linguistics, 5: 57-74
- Bradley, R. and Swartz, N. (1979) Possible Worlds : an introduction to logic and philosophy, Blackwell, Oxford.
- Braroe, E.E. (1974) "The Syntax and Semantics of English Tense Markers" Monograph 1, Stockholm: Institute of Linguistics.
- Bresnan, J. (1981) "An Approach to Universal Grammar and the mental representation of language" Cognition, 10: 39-52
- Bresnan, J., (ed) (1982) The Mental Representation of Grammatical Relations, MIT Press.
- Brockway, D. (1981) "Semantic Constraints on relevance" (In Press) Langagea.
- Bronckart, J.P. and Sinclair, H. (1973) "Time, tense and aspect", Cognition, 2: 107-130
- Bull, W. (1968) Time, Tense, and the Verb, University of California Press.
- Bybee, J.C. and Slobin, D.I. (1982) "Rules and Schemas in the development and use of English Past", Language 58: 265-289
- Carlson, G.N. (1979) "Generics and atemporal when ", Linguistics and Philosophy, 3: 49-98



- Carlson, L. (1981) "Aspect and Quantification" in P. Tedeschi and A. Zaenen (eds).
- Cassirer, E. (1971) "On the Reality of Becoming", Studium Generale, 24: 1-9
- Chomsky, N. (1965) Aspects of the theory of Syntax. MIT Press.
- Chomsky, N. and Halle, M. (1968) The Sound pattern of English. New York, Harper and Row.
- Chomsky, N. (1980) Rules and Representations, Oxford, Blackwell.
- Chomsky, N. (1981) Lectures on Government and Binding. Foris, The Netherlands.
- Clark, H.H. (1977) "Bridging", in P.N. Johnson-Laird and P.C. Wason, (eds)
- Clark, H.H. and Marshall, C.R. (1981) "Definite reference and mutual knowledge" in A.K. Joshi et al.
- Clark, H.H. and Carlson, T.B. (1982a) "Speech Acts and Hearers' Beliefs" in N.V. Smith (ed)
- Clark, H.H. and Carlson, T.B. (1982b) "Hearers and Speech Acts" Language, 58:2: 332-373
- Classen, P. (1979) "On the trichotomic time structure of the tenses in German and English", Linguistics, 17: 795-825
- Cochrane, N. (1977) "An Essential Difference between Momentary and Durative Events", Chicago Linguistic Society, 13: 93-103
- Cole, P. and Morgan, J. (eds) (1975) Syntax and Semantics 3 : Speech Acts. New York, Academic Press.

- Cole, P. (ed) (1978) Syntax and Semantics 9 : Pragmatics, New York, Academic Press.
- Cole, P. (ed) (1981) Radical Pragmatics, New York, Academic Press.
- Coleman, L. and Kay, P. (1981) "Prototype Semantics : The English Word Lie", Language, 57,1: 26-44
- Comrie, B. (1976) Aspect, Cambridge University Press.
- Comrie, B. (1981a) "Aspect and Voice" in Tedeschi and Zaenen (eds).
- Comrie, B. (1981b) "On Reichenbach's Approach to Tense" Chicago Linguistic Society, 15: 24-30
- Cowan and Schuh (1976) Spoken Hausa, Spoken Languages Series, Ithaca, New York.
- Cresswell, M.J. (1978) "Adverbs of space and time" in Guenther and Schmidt (eds).
- Cresswell, M.J. (1979) "Interval Semantics for some Event Expressions" in Bauerle, R. et al. (eds).
- Crystal, D. (1966) "Specification and English Tenses" Journal of Linguistics. 2: 1-34
- Cutler, A. (1974) "On Saying what you mean without meaning what you say", Chicago Linguistic Society. 10: 117-127
- Cutler, A. and Fodor, J.A. (1979) "Semantic focus and Sentence comprehension", Cognition, 7.1: 49-59
- Cutler, A. and Fay, D.A. (1982) "One Mental Lexicon Phonologically Arranged: Comments on Hurford's Comments" Linguistic Inquiry. 13,1: 107-113

- Cutler, A. (1982) "Idioms: the colder the older"  
Linguistic Inquiry. 13.2: 317-320
- Dahl, Ö. (1975) "On generics" in E.L. Keenan, (ed.)
- Dahl, Ö. (1980) "Review of Nils B. Thelin : Towards  
a Theory of Aspect, Tense and Actionality  
in Slavic". Studies in Language 4:2:  
164-168
- Dahl, Ö. (1981) "On the Telic/Atelic Distinction"  
in Tedeschi and Zaenen, (eds).
- Dalgish, G.M. (1977) "Past Tense Formation in (Oru)  
Haya" African Languages/Langues  
Africaines, 3: 78-91
- Davidson, D. (1967) "Truth and Meaning", Synthese,  
17: 304-323
- Davidson, D. (1970) "Semantics for natural language"  
in Linguaggi Nella Societa e Nella Tecnica,  
177-188, Milan.
- Davies, M. (1981) "Meaning, Structure and Understanding",  
Synthese, 48: 135-161
- Declerck, R. (1979a) "Aspect and the Bounded/Unbounded  
(telic/atelic) distinction", Linguistics  
17: 761-794
- Declerck, R. (1979b) "The Progressive and the Imperfective  
Paradox", Linguistics and Philosophy,  
3: 267-272
- Declerck, R. (1981) "On the Role of Progressive Aspect  
in non finite Perception Verb Complements",  
Glossa, 15.1: 83-114

- Deutsch, W. and Pechmann, T. (1982) "Social interaction and the development of definite descriptions" Cognition. 11, 159-184
- Dezso, L. (1982) Studies in syntactic typology and Contrastive grammar, Mouton, The Hague.
- van Dijk, T.A. (ed) (1976) Pragmatics of Language and Literature, 2, North Holland.
- van Dijk, T.A. (1977) Text and Context: Explorations in the Semantics and Pragmatics of Discourse, Longman, London.
- Dinsmore, J. (1981) "Tense Choice and Time Specification in English" Linguistics, 19: 475-494
- Dooley, R.A. (1982) "Options in the pragmatic structuring of Guarani Sentences" Language, 58:2: 307-331
- Dore, J. and McDermott, R.P. (1982) "Linguistic Indeterminacy and social context in utterance interpretation" Language, 58:2:374-398
- Dowty, D. (1977) "Toward a Semantic Analysis of Verb Aspect and the English 'Imperfective' Progressive", Linguistics and Philosophy, 1.1: 45-77
- Dowty, D. (1978) "Governed Transformations as Lexical Rules in a Montague Grammar". Linguistic Inquiry. 9.3: 393-426
- Dowty, D. (1979) Word Meaning and Montague Grammar, D. Reidel.
- Dowty, D. (1982) "Tenses, Time Adverbs, and Compositional Semantic Theory" Linguistics and Philosophy, 5: 23-55
- Dowty, D. et al. (1981) Introduction to Montague Semantics, D. Reidel.

- Dubs, H.H. (1958) "Language and Philosophy", Philosophical Review, LXIV.
- Ejerhed, E. (1978) "Tense in Intensional Contexts" Ms. 18, UMEA, Sweden.
- Ejerhed, E. (1979) "On Limiting theses in an adequate semantics for English Tenses" Ms. 20, UMEA, Sweden.
- Ejerhed, E. (1981) "Tense as a Source of Intensional Ambiguity" in F. Heny (ed).
- Emonds, J. (1975) "Assigning Tense Meanings after certain Syntactic Transformations apply" in E.L. Keenan (ed).
- Fauconnier, G. (1982) "Pragmatic functions and mental spaces" Cognition. 11, 85-88
- Fawcett, R.P. (1980) Cognitive linguistics and social interaction, Julius Groos Verlag and University of Exeter.
- Ferreire, E. and Sinclair, H. (1971) "Temporal Relationships in Language", International Journal of Psychology, 6: 39-47
- Fillmore, C.J. and Langendoen, D.T. (1971) Studies in linguistic semantics, NY, Holt, Rinehart and Winston.
- Fleischman, S. (1982a) The Future in Thought and Language, Cambridge University Press.
- Fleischman, S. (1982b) "The past and the future : are they coming or going?" Berkeley Linguistic Society, 8: 322-334
- Fodor, J.A. (1980) "Methodological solipsism considered as a research strategy in cognitive psychology", The Behavioural and Brain Sciences, 3, 63-109

- Fodor, J.A. (1981) "Functionalism in Philosophy and Cognitive Sciences", MS
- Fodor, J.A. and Fodor, J.D. (1980) "Functional Structure, Quantifiers, and Meaning Postulates", Linguistic Inquiry, 11:4: 759-769
- Fodor, J.A., Garret, M.F., Walker, E.C.T. and Parkes, C.H. (1980) "Against Definitions" Cognition, 8.3: 263-367
- Fodor, J.D. (1981) "Does performance shape competence?" Longuet-Higgins et al. (eds)
- Forsyth, J. (1970) A grammar of Aspect: usage and meaning in the Russian Verb, Cambridge University Press.
- Forsyth, J. (1972) "The nature and development of the aspectual opposition in the Russian verb" Slavonic and East European Review, 50.
- van Fraassen, B.C. (1966) "Singular Terms, Truth-value gaps, and free logic", The Journal of Philosophy, LXIII, 17: 481-495
- Freed, A.F. (1979) The Semantics of English Aspectual Complementation, D. Reidel.
- French, P.A. et al. (eds) (1979) Contemporary Perspectives in the Philosophy of Language. University of Minnesota Press.
- Friedrich, P. (1974) "On Aspect Theory and Homeric Aspect" International Journal of American Linguistics, Memoir 28.
- Fuchs, C. and Rouault, J. (1975) "Towards a formal treatment of the phenomenon of aspect" in E.K. Keenan (ed).
- Gabbay, D. (1976) Investigations in modal and tense logics, D. Reidel.

- Gabbay, D. (1979) "Do we really need tenses other than Future and Past?" in Bauerle et al. (eds).
- Gale, R.M. (ed) (1968) The Philosophy of Time, Macmillan, London.
- Gallagher, M. (1970) "Adverbs of time and tense" Chicago Linguistic Society, 6: 220-225
- Garey, H.B. (1957) "Verbal Aspect in French" Language, 33:1: 91-110
- Gawron, J.M. (1981) "Aspect and Boundedness in Polish" Chicago Linguistic Society, 14: 76-82
- Gazdar, G. (1979) Pragmatics, New York, Academic Press.
- Gazdar, G., Pullum, G.K. and Sag, I.A. (1981a) "Auxiliaries and Related Phenomena in a Restricted Theory of Grammar", I.U.L.C. Bloomington; now in Language (1982).
- Gazdar, G. (1981b) "Speech Act Assignment", in A. Joshi et al. (eds).
- Gazdar, G. and Good, D. (1982) "On a Notion of Relevance - Comments on Sperber and Wilson Paper" in N.V. Smith (ed).
- Gibbs, R.W. (1980) "Spilling the beans on understanding and memory for idioms in conversation", Memory and Cognition. 8.2: 149-156
- Gillies, F. (1980) "The Bantu Concept of Time", Religion, 10: 16-30
- Givón, T. (1973) "The Time-Axis Phenomenon", Language, 49.4: 890-925
- Goldsmith, J. and Woisetschlaeger, E. (1982) "The Logic of the English Progressive", Linguistic Inquiry, 13:1: 79-89

- Green, G.M. (1981) "Pragmatics and Syntactic Descriptions", Studies in the Linguistic Science, 11,1: 27-37
- Greenberg, J. (ed) (1978) Universals of Language Vol. III, Stanford University Press.
- Grice, H.P. (1968) Utterer's meaning, sentence-meaning, and word-meaning", Foundations of Language, 4, 225-242
- Grice, H.P. (1975) "Logic and Conversation", in P. Cole and J. Morgan (eds).
- Grice, H.P. (1978) "Further Notes on Logic and Conversation", in P. Cole, (ed).
- Guenthner, F. (1978) "Time Schemes, Tense Logic and the Analysis of English Tenses", in Guenthner and Schmidt (eds).
- Guenthner, F. and Schmidt, S.J. (eds) (1978) Formal Semantics and Pragmatics for Natural Languages, D. Reidel.
- Guenthner, F. and Rohrer, C. (eds) (1978) Studies in Formal Semantics, North Holland.
- Halle, M., Bresnan, J., Miller, G. (eds) (1978) Linguistic Theory and Psychological Reality, MIT Press.
- Halliday, M.A.K. and Hasan, R. (1976) Cohesion in English, London, Longman.
- Hamblin, C.L. (1970) "The Effect of When it's Said" Theoria, 3: 249-263
- Hamblin, C.L. (1971) "Instantants and Intervals", Studium Generale, 24: 127-134



- Hamblin, C.L. (1970) Fallacies, Methuen and Co., London
- Hampton, J.A. (1982) "A demonstration of intransitivity in natural categories" Cognition, 12:2: 151-164
- Harman, G. and Davidson, D. (eds) (1972) Semantics of Natural Language. D. Reidel.
- Harnish, R.M. (1977) "Logical Form and Implicature" in T. Bever, J.J. Katz and D.T. Langendoen (eds).
- Heine, B. (1976) A Typology of African Languages, Dietrich Reimer Verlag, Berlin.
- Hendrick, R. (1981) "Core grammar and properties of Subject Auxiliary Inversion", Glossa, 15-2: 211-232
- Heny, F. (ed) (1978) Ambiguities in Intensional Contexts, D. Reidel.
- Heny, F. (1982) "Tense, Aspect and Time Adverbials" Linguistics and Philosophy, 5.1: 109-154
- Higginbotham, J. and May, R. (1981) "Crossing, Markedness, Pragmatics", in A. Belletti, et al. (eds).
- Hintikka, J. (1982) "Temporal discourse and Semantical games". Linguistics and Philosophy, 5:1: 3-22.
- Hirtle, W.H. (1977) "Already, Still and Yet" Archivum Linguisticum, III:1: 28-45
- Hoepelman, J.P.H. (1974) "Tense, Logic and the Semantics of Russian Aspects". Theoretical Linguistics, 1, 1.2: 158-180
- Hoekstra, T., Hulst, H.V.D. and Moortgat, M. (eds) (1980) Lexical Grammar, Foris Publications.
- Hofmann, T.R. (1976) "Past Tense Replacement and the modal system" in J.D. McCawley (ed).

- Holisky, D.A. (1981) "Aspect Theory and Georgian Aspect", in Tedeschi and Zaenen (eds).
- Hopper, P.J. (1979) "Some observations on the typology of focus and aspect in narrative language", Studies in Language, 3, 1: 37-64
- Hornstein, N. (1977) "Towards a theory of tense", Linguistic Inquiry, 8, 521-557
- Huddleston, R. (1969) "Some observations on Tense and Deixis in English", Language, 45, 777-806
- Huddleston, R. (1977) "Past Tense Transportation in English", Journal of Linguistics, 13: 43-52
- Huddleston, R. (1978) "On the constituent structure of VP and AUX", Linguistic Analysis, 4, 31-59
- Hudson, R.A. (1973) "Tense and time reference in reduced relative clauses", Linguistic Inquiry, 4: 251-256
- Inoue, Kyoko. (1978) "How many senses does the English present perfect have?". Chicago Linguistic Society. 14, 167-178
- Inoue, Kyoko. (1979) "An Analysis of the English Present Perfect". Linguistics, 17, 7.8: 561-589
- Iwakura, K. (1977) "The Auxiliary system in English" Linguistic Analysis, 3,2: 101-136
- Jackendoff, R. (1972) Semantic Interpretation in Generative Grammar, MIT Press.
- Jackendoff, R. (1976) "Toward an Explanatory Semantic Representation" Linguistic Inquiry, 7.1: 89-150

- Jackendoff, R. (1977) X Syntax : A Study of Phrase Structure, MIT Monograph 2.
- Jacobsen, W. (1979) "Transitive Verbs, Dynamic Verbs, and Aspect in Japanese". Chicago Linguistic Society. 15: 160-171
- Jacobsen, W. (1982) "Vendler's verb classes and the aspectual character of Japanese te-iru". Berkeley Linguistic Society, 8: 373-383
- Jacobson, P. and Pullum G.K. (1982) The Nature of Syntactic Representation, D. Reidel.
- Jakobson, R. (1957) "Shifters, Verbal Categories and the Russian Verb" in Selected Writings Vol. 2 Word and Language, 130-147, The Hague: Mouton.
- Jarvella, R.J. and Klein, W (eds) (1982) Speech, Space and Action : Studies in Deixis and Related Topics. Cambridge University Press.
- Jason, G.J. (1980) "Notes Towards A Formal Conversation Theory" in Grazer Philosophische Studien, 10, Rodopi.
- Jespersen, O. (1924) The Philosophy of Grammar 12th Impression, George Allen and Unwin, London.
- Johnson, M.R. (1977) "An Interval-based Theory of Tense and Aspect" (MS) University of Western Ontario, Canada.
- Johnson, M.R. (1981) "A Unified Temporal Theory of Tense and Aspect" in Tedeschi and Zaenen, (eds).
- Johnson, O.E. (1936) "Tense Significance as the time of the Action" - Language Supplement, 21.
- Johnson-Laird, P.N. (1975) "Meaning and the Mental Lexicon", in Kennedy, A. and Wilkes, A. (eds).

- Johnson-Laird, P.N. (1981) "Mental models of meaning"  
in A. Joshi et al. (eds).
- Johnson-Laird, P.N. and Wason, P.C. (eds) (1977)  
Thinking: readings in cognitive Science.  
Cambridge University Press.
- Joshi, A.K., Sag, I. and Webber, B. (eds) (1981)  
Elements of Discourse Understanding,  
Cambridge University Press.
- Kaisse, E.M. (1981) "Luisseño particles and the universal  
behaviour of clitics", Linguistic Inquiry,  
12:3: 424-434
- Kambartel, F. (1979) "Constructive Pragmatics and  
Semantics", in Bauerle, R. et al. (eds).
- Kamp, H. (1979) "Events, Instantns and Temporal  
Reference" in Bauerle, R. et al. (eds).
- Karttunen, L. (1971) "Implicative Verbs", Language,  
47.2: 340-358
- Kasher, A. (1979) "On Pragmatic Demarcation of  
Language" in Bauerle, R. et al. (eds).
- Kean, M-L. (1981) "On a Theory of Markedness :  
Some General Considerations and a Case  
in Point", in Belletti, et al. (eds).
- Keenan, E.L. (1975) Formal Semantics of Natural  
Language, University of Cambridge Press.
- Kempson, R.M. (1975) Presupposition and the Delimitation  
Semantics. Cambridge University Press.
- Kempson, R.M. (1977) Semantic Theory, Cambridge  
University Press.

- Kempson, R.M. and Cormack, A. (1981) "Ambiguity and Quantification", Linguistics and Philosophy, 4: 259-306
- Kempson, R.M. and Cormack, A. (1982) "Quantification and Pragmatics", Linguistics and Philosophy, 4:4: 607-618
- Kennedy, A. and Wilkes, A. (eds) (1975) Studies in Long Term Memory, John Wiley and Sons, London.
- Kenny, A. (1963) Action, Emotion and Will, Routledge and Kegan Paul, London.
- Kenny, A. (1981) "Language and mind" in Longuet-Higgins et al. (eds).
- Kiefer, F. and Ruwet, N. (eds) (1973) Generative Grammar in Europe, D. Reidel.
- Kingston, J. (1979) "Temporal Relations in Bakweri Oral narratives". Berkeley Linguistic Society, 5. 159-179
- Konig, E. (1977) "Temporal and non-temporal uses of noch and schon in German", Linguistics and Philosophy, 1: 171-198
- Koster, J. (1978) "Conditions, Empty Nodes, and Markedness", Linguistic Inquiry, 9.4: 551-593
- Kripke, S. (1977) "Speaker's Reference and Semantic Reference". Midwest Studies in Philosophy, 11: 233-276
- Kučera, H. and Trnka, K. (1975) Time in Language: Temporal Adverbial Constructions in Czech, Russian and English, Michigan Slavic Materials No. 12.
- Kučera, H. (1981) "Aspect, Markedness and  $t_o$ ", in Tedeschi and Zaenen (eds).
- Kuhn, S. (1979) "The Pragmatics of Tense", Synthese, 40, 231-262.

- Lakoff, R. (1970) "Tense and Its relation to Participants", Language, 46: 838-849
- Langacker, R.W. (1978) "The Form and Meaning of the English Auxiliary", Language, 54, 4: 853-882
- Lapointe, S.G. (1980) "A Note on Akmajian, Steele and Wasow's Treatment of Certain Verb Complement Types", Linguistic Inquiry, 11:4: 770-787
- Lapointe, S.G. (1980) "A Lexical Analysis of the English Auxiliary verb system" in T. Hoekstra et al. (eds).
- Lappin, S. (1982) "On the pragmatics of mood", Linguistics and Philosophy, 4:4: 559-578
- Leech, G.N. (1971) Meaning and the English Verb, Longman, London.
- Lehrer, A. (1975) "Interpreting Certain Adverbs: Semantics or Pragmatics", Journal of Linguistics, 11: 239 - 248
- Lemmon, E.J. (1971) "Sentences, Statements and Propositions" in Rosenberg and Travis (eds).
- Lepore, L. and Loewer, B. (1981) "Translational Semantics", Synthese, 48, 1: 121-133
- Lewis, D. (1972) "General Semantics" in Harman & Davidson, (eds).
- Lewis, D. (1975) "Adverbs of quantification" in E.L. Keenan (ed).
- Lieber, R. (1981) On the Organization of the Lexicon I.U.L.C., Bloomington.
- Lisauskas, S. (1976) "Objects of Negated Verbs in Lithuanian", Chicago Linguistic Society, 12: 459-467

- Ljung, M. (1980) Reflections on the English Progressive, Acta Universitatis Gothoburgensis, Gothenburg Studies in English 46, Coteburg, Sweden.
- Longuet-Higgins, H.C., Lyons, J., Broadbent, D.E. (eds) (1981) The Psychological Mechanisms of Language.
- Lyons, C.G. (1978) "A Look into the Spanish Future" Lingua, 46: 225-244
- Lyons, J. (1977) Semantics, Vols. I and II Cambridge University Press.
- Lyons, J. (1981) Language, Meaning and Context, Fontana, London.
- Macaulay, R.K.S. (1978) "On Comrie, (1976) and Friedrich (1974)", Language, 54,2: 416-420
- McCawley, J.D. (1971) "Tense and time reference in English" in Fillmore and Langendoen, (eds).
- McCawley, J.D. (1981) Everything that Linguists have always wanted to know about Logic .... Blackwell, Oxford.
- McCawley, J.D. (ed) (1976) Syntax and Semantics 7, New York Academic Press.
- McCoard, R. (1978) The English Perfect, Amsterdam: North Holland.
- McConnell-Ginet, S. (1982) "Adverbs and Logical Form: A Linguistically Realistic Theory". Language, 58,1: 144-184.

- McGillvray, J.A. (1974) "A Proposal for the Semantics of Tenses in English" Recherches Linguistiques a Montreal/Montreal Working Papers in Linguistics VI.
- Majewicz, A.F. (1982) "Understanding Aspect", Lingua Posnaniensis, XXIV. 31-61 Warszawa - Poznan.
- Majumdar, M.J. and Morris, A.M. (1980) "The French pluperfect tense as a punctual past" Archivum Linguisticum XI, 1, 1-12
- Manelis, L. (1980) "Determinants of processing for a propositional structure", Memory and Cognition 8,1: 49-57
- Marslen-Wilson, W. and Tyler, L.K. (1980) "The Temporal structure of spoken language understanding", Cognition, 8,1: 1-71
- Mbiti, J. (1969) African Religions and Philosophy Heinmann, London.
- Melchert, H.C. (1980) "Some Aspects of 'aspect' in Mandarin Chinese", Linguistics 18, 635-654
- Michell, G. (1976) "Indicating the Truth of Propositions: A Pragmatic Function of Sentence Adverbs", Chicago Linguistic Society, 12: 495-505
- Miller, G.A. and Johnson-Laird, P.N. (1976) Language and Perception, Cambridge University Press.
- Miller, J.E. (1970) "Stative Verbs in Russian", Foundations of Language, 6: 488-504



- Mittwoch, A. (1977) "How to refer to one's own words: Speech act modifying adverbials and the performative analysis", Journal of Linguistics, 13, 177-189
- Mittwoch, A. (1980) "The Grammar of Duration" Studies in Language, 4, 2: 201-227
- Mittwoch, A. (1982) "On the Difference between Eating and Eating something: Activities versus Accomplishments", Linguistic Inquiry, 13,1: 113-122
- Morava, E.C. (1977) "What is a "negative equivalent"?: data from the Swahili negative tenses", Studies in African Linguistics, supp. 7: 165-173
- Moravcsik, E.A. (1978) "Reduplicative constructions" in Greenberg, (ed).
- Moravcsik, J.M. (1982) "Tense, aspect and negation" Theoretical Linguistics, 9:1: 95-109
- Morrissey, M.D. (1973) "The English Perfective and "Still"/ "Anymore"", Journal of Linguistics, 9: 65-69
- Mott, P. (1973) "Dates, Tenseless Verbs and Token-Reflexivity", Mind LXXXII, 73-85
- Mourelatos, A.P.D. (1981) "Events, Processes and States" in Tedeschi and Zaenen (eds).
- Mufwene, S.S. (1978) "A Reconsideration of Lingala Temporal Inflections", Studies in African Linguistics: 9,1: 91-105
- Mufwene, S.S. and Bokamba, E.G. (1979) "Are there modal-auxiliaries in Lingala?" Chicago Linguistic Society, 15, 244-255
- Murphy, A.B. (1965) Aspectual Usage in Russian, Pergamon Press, Oxford.

- Nakau, M. (1975) "Tense, aspect and modality" in M. Shibatani (ed) Syntax and Semantics, 5, New York, Academic Press.
- Nerbonne, J. (1982) "The German Perfect", Chicago Linguistic Society, 18: 390-399
- Newmeyer, F.J. (1975) English Aspectual Verbs, Mouton, The Hague.
- Newmeyer, F.J. (1980) Linguistic Theory in America, New York, Academic Press.
- Newton, B. (1979) "Scenarios, Modality, and Verbal Aspect in Modern Greek", Language, 55,1: 139-167
- Newton, B. and Veloudis, I. (1980) "Necessity, Obligation and Modern Greek Verbal Aspect", Lingua, 50, 25-43
- Newton-Smith, W.H. (1980) The Structure of Time, Routledge and Kegan Paul, London.
- Nilsen, D.L.F. (1972) English Adverbials, Mouton, The Hague.
- Nurse, D. (1979) "Description of Sample Bantu Languages of Tanzania" African Languages/Langues Africaines, 1.
- Oden, G.C. (1977) "Integration of Fuzzy Logical Information", Journal of Experimental Psychology, Human Perception and Performance, 3,4: 565 - 575
- Oden, G.C. (1978) "Semantic Constraints and judged preference for interpretations of ambiguous sentences", Memory and Cognition 6.1: 26-37
- Oh, C.K. (1978) "Tense and Aspect in Korean" Chicago Linguistic Society, 14: 340-349

- Oh, C-K. and Dineen, D. (eds) (1979) Syntax and Semantics 11: Presupposition, New York, Academic Press.
- Ohman, S. and Kanger, S. (eds) (1979) Philosophy and Grammar D. Reidel Publishing.
- Ortony, A. et al. (1978) "Interpreting metaphors and idioms : some effects of context on comprehension", Journal of Verbal Learning and Verbal Behaviour 17: 465-477
- Osherson, D.N. and Smith, E.E. (1981) "On the adequacy of prototype theory as a theory of concepts", Cognition, 9: 35-58
- Palmer, F.R. (1974) The English Verb, Longman, London.
- Palmer, F.R. (1978) "Past Tense Transportation : a reply", Journal of Linguistics, 14, 77-81
- Palmer, F.R. (1979) Modality and the English Modals, Longman, London.
- Partee, B.H. (1973) "Some Structural Analogies between Tenses and Pronouns in English", Journal of Philosophy, LXX, 18: 601-609
- Partee, B.H. (1977) "Possible Worlds Semantics and Linguistic Theory", The Monist, 60, 3: 303-326
- Partee, B.H. (1979a) "Semantics - Mathematics or Psychology" in Bauerle, A. et al. (eds).
- Partee, B.H. (1979b) "Montague Grammar, Mental Representations, and Reality" in Ohman and Kanger (eds).
- Pease-Gorrissen, M. (1980) "The use of the Article in Spanish Habitual and Generic Sentences", Lingua, 51, 4: 311-336

- Perkins, M.R. (1982) "The core meanings of the English modals", Journal of Linguistics, 18:2: 245-273
- Perrault, C.R. and Cohen, P.R. (1981) "It's for your own good; a note on inaccurate reference" in A. Joshi et al. (eds).
- Platzack, C. (1979) The Semantic Interpretation of Aspect and Aktionsarten, A study of Internal Time Reference in Swedish; Foris, The Netherlands.
- Povel, D.J. (1981) "Internal Representation of Simple Temporal Patterns", Journal of Experimental Psychology: Human Perception and Performance, 7,1: 3-18
- Price, T. (1940) "Nyanja Linguistic Problems", Africa, 13: 125-137
- Price, T. (1962) The Elements of Nyanja, C.C.A.P. Press, Blantyre.
- Prince, E.F. (1982) "The simple futurate : not simply progressive futurate minus progressive", Chicago Linguistic Society, 18, 453-465
- Prior, A. (1967) Past, Present and Future, Clarendon Press, Oxford.
- Pullum, G.K. and Wilson, D. (1977) "Autonomous syntax and the analysis of auxiliaries", Language, 53: 741-788
- Pullum, G.K. (1981) "Evidence against the "AUX" node in Luiseño and English", Linguistic Inquiry, 12:3: 435-463
- Quirk, R. et al. (1972) A Grammar of Contemporary English, Longman, London.
- Reichenbach, H. (1947) Elements of Symbolic Logic, University of California Press.

- Rescher, N. and Urquhart, A. (1971) Temporal Logic, Springer - Verlag.
- Richards, B. (1982) "Tense, Aspect and time adverbials", Linguistics and Philosophy 5:1: 59-107
- Ricoeur, P. (ed) (1976) Cultures and time, UNESCO, Paris.
- Rigter, G.H. (1981) "Stacked Structures, in English: Semantic motivation and syntactic stipulation", Lingua, 53: 33-60
- Ritchie, G.D. (1979) "Temporal clauses in English", Theoretical Linguistics, 6:1:
- Riviere, C. (1980) "Tense, aspect and time location", Linguistics, 18: 105-135
- Rohsenow, J.S. (1976) "A unified treatment of lexical, verbal and sentential aspect in Mandarin Chinese", Chicago Linguistic Society, 12: 523-532
- Rosch, E. and Lloyd, B. (eds) (1978) Cognition and Categorization, Lawrence Erlbaum Associates, Publishers.
- Rosenberg, J. and Travis, C. (eds) (1971) Readings in the Philosophy/Language, Minnesota University Press. of  
h
- Ruhl, C. and Hines, C.P. (1982) "Modal Phrases", Linguistic Inquiry, 13,1: 154-160
- Sanders, G.A. (1978) "Adverbial Constructions" in Greenberg, (ed).
- Sanderson, G.M. (1922) A Yao Grammar, MacMillan Co, London.
- Sanderson, G.M. (1954) A Dictionary of the Yao Language, Zomba Printer.

- Scheffer, J. (1975) The Progressive in English, Amsterdam, North Holland.
- Schiffrin, D. (1981) "Tense variation in narrative", Language, 57:1: 45-62
- Searle, J.R. (1969) Speech Acts: an essay in the Philosophy of Language, Cambridge University Press.
- Searle, J.R. (ed) (1971) The Philosophy of Language, Oxford University Press.
- Searle, J.R., Kiefer, F. and Bierwisch, M. (eds) (1980) Speech Act Theory and Pragmatics, D. Reidel.
- Sgall, P. (1980) "Towards a Pragmatically Based Theory of Meaning" in Searle et al. (eds).
- Shorter, J.N. (1981) "Space and time", Mind, XC: 61-78
- Slobin, D.I. (1981) "Psychology without linguistics = language without grammar", Cognition, 10: 275-280
- Smith, C.S. (1976) "Present Curiosities", Chicago Linguistic Society, 12: 568-581
- Smith, C.S. (1977) "The vagueness of sentences in isolation", Chicago Linguistic Society, 13: 568-577
- Smith, C.S. (1978) "The syntax and interpretation of temporal expressions in English", Linguistics and Philosophy, 2: 43-99
- Smith, C.S. (1981a) "Constraints on temporal interpretation", Tedeschi and Zaenen, (eds).
- Smith, C.S. (1981b) "The futurate progressive : not simply future + progressive", Chicago Linguistic Society, 17: 361-382
- Smith, C.S. (1982) "The temporal reference of the English futurate", Cognition and Communication.

- Smith, N.V. (1975) "On Generics", Transactions of the Philological Society: 27-48
- Smith, N.V. (1981) "Grammaticality, time and tense", in Longuet-Higgins et al. (eds).
- Smith, N.V. and Wilson, D. (1979) Modern Linguistics: The results of Chomsky's revolution, Penguin, London.
- Smith, N.V. (ed) (1982) Mutual Knowledge, Academic Press, London.
- Soemarmo, M. (1976) "The semantics of proximity time relations", Foundations of Language: 14: 395-397
- Sperber, D. and Wilson, D. (1981a) "Irony and the Use-Mention Distinction" in P. Cole, (ed).
- Sperber, D. and Wilson, D. (1981b) "On Defining Relevance" in R. Grandy, (ed) A Festschrift for Paul Grice (In Press).
- Sperber, D. and Wilson, D. (1981c) "Pragmatics", Cognition, 10: 281-286
- Sperber, D. and Wilson, D. (1982) "Mutual Knowledge and Relevance in Theories of Comprehension", in N.V. Smith, (ed).
- Sperber, D. and Wilson, D. (forthcoming) Language and Relevance: Foundations of Pragmatic Theory.
- Steedman, M.J. (1977) "Verbs, time and modality" Cognitive Science, 1: 216-234
- Steele, S. (1978) "The Category AUX as a language universal" in J. Greenberg, (ed).
- Steele, S. et al. (1981) An encyclopedia of AUX: a study of cross-linguistic equivalence, MIT Monograph 5.

- Stillings, N.A. (1975) "Meaning rules and systems of inference for verbs of transfer and possession", Journal of Verbal Learning and Verbal Behaviour, 14: 453-470
- Stump, G.T. (1981) "The interpretation of frequency adjectives" Linguistics and Philosophy, 4:2: 221-257
- Swinney, D. (1981) "The process of language comprehension: an approach to examining issues in cognition and language", Cognition, 10: 307-312
- Tasaku, T. (1981) "Split case-marking patterns in verb-types and tense "aspect" mood", Linguistics, 19: 389-438
- Taylor, B. (1977) "Tense and continuity", Linguistics and Philosophy, 1: 199-220
- Tedeschi, P. (1981) "Some evidence for branching-futures model" in Tedeschi & Zaenen, (eds).
- Tedeschi, P. and Zaenen, A. (eds) (1981) Syntax and semantics 14: Tense and Aspect, New York, Academic Press.
- Thelin, N.B. (1978) Towards a theory of aspect, tense and actionality in Slavic. Studia Slavica Upsaliensia, supplement 18, Acta Universitatis Upsaliensis, Uppsala.
- Thomason, R. (1970) "Indeterminist time and truth-value gaps", Theoria, XXXVI, 264-281
- Tichý, P. (1980) "The logic of temporal discourse", Linguistics and Philosophy, 3: 343-369
- Traugott, E.C. (1978) "On the expression of spatio-temporal relations in language", in J. Greenberg, (ed).
- Trithart, M.L. (1977) "Relational Grammar and Chichewa Subjectivisation Rules", I.U.L.C., Bloomington.



- Ultan, R. (1978) "The nature of future tenses", in J. Greenberg, (ed).
- Vendler, Z. (1957) "Verbs and Times" now in Linguistics in Philosophy (1967) Cornell University Press.
- Vendler, Z. (1979) "Telling the facts" in P.A. French et al.
- Verkuyl, H.J. (1972) On the compositional nature of the aspects, D. Reidel.
- Verkuyl, H.J. (1973) "Temporal prepositions as quantifiers" in Kiefer and Ruwet, (eds).
- Verkuyl, H.J. (1976) "Interpretive rules and the description of the aspects", Foundations of Language: 14: 471-503
- Verkuyl, H.J. (1978) "Thematic relations and the semantic representation of verbs expressing change", Studies in Language, 2:2:199-233
- Verloyten, S.P. (1979) "The semantic interpretation of French verb tenses in adverbial clauses", Linguistic Investigation, III, 2:355-374
- Vetter, D.C. (1973) "Someone solves this problem tomorrow", Linguistic Inquiry, 4: 104-108
- Vlach, F. (1981) "The semantics of the progressive", in Tedeschi and Zaenen, (eds).
- Wachtel, T. (1982) "Some problems in tense theory", Linguistic Inquiry, 13: 2: 336-341

- Wald, B. (1976) "Comparative notes on Past Tenses in Kenyan Northeast Bantu Languages", Studies in African Linguistics, 6: 267-281
- Watkins, M.H. (1937) A Grammar of Chicheŵa, Language Supplement 34.
- Weinrich, H. (1970) "Tense and time", Archivum Linguisticum, 1: 31-42
- Welmers, Wm. E. (1973) African Language Structures, University of California Press.
- Werth, P. (ed) (1981) Conversation and discourse, Croom Helm, London.
- Whiteley, W.H. (1966) A Study of Yao Sentences, Oxford University Press.
- Wilks, Y. (1981) "A position note on natural language understanding and artificial intelligence", Cognition, 10: 307-312
- Wilson, D. (1975) Presuppositions and non-truth-conditional semantics, Academic Press London.
- Wilson, D. and Sperber, D. (1979) "Ordered entailments: an alternative to presuppositional theories", C-K. Oh and D. Dineen, (eds)
- Wilson, D. and Sperber, D. (1980) "On finding the context for comprehension", Proceedings of the European Psycholinguistic Association meeting, Göteborg, October.

- Wilson, D. and Sperber, D. (1981) "On Grice's Theory of Conversation", in P. Werth, (ed).
- Wolfson, N. (1979) "The conversational historical present alternation", Language, 55: 1: 168-182
- Wunderlich, D. (1979) "Meaning Context-Dependence" in Bauerle et al. (eds).
- Yager, R.R. (1980) "On the measure of fuzziness and negation. II. Lattices", Information and Control, 44: 236-260
- Yavaş, F. (1982) "The Turkish Aorist", Glossa, 16:1: 41-53
- Yekovich, F.R. and Manelis, L. (1980) "Accessing integrated and nonintegrated propositional structures in memory", Memory and Cognition: 8:2: 133-140
- Zadeh, L.A. (1965) "Fuzzy sets", Information and Control: 8: 338-353
- Zandvoort, R.W. (1962) "Is 'Aspect' an English Verbal Category?", in F. Behre, (ed).
- Zemach, E.M. (1979) "Time and self", Analysis, 39:3: 143-147
- Zydati~~ß~~, W. (1978) "'Continuative' and 'Resultative' Perfects in English?", Lingua, 44: 339-362